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ABSTRACT

These proceedings consist of the papers presented at a conference on vocational education research in the 1980s. The first group of papers deals with various approaches to, and priorities for, vocational education research in the 1980s. Discussed in the next group of papers are national perspectives on research programming. Following this group are nine papers devoted to state and local perspectives on research programming; topics addressed include the following: vocational education program improvement; a research development agenda for the 1980s that would cover productivity, economic advancement, and human resource development; programming recommendations regarding curriculum; and the perspectives of a superintendent of schools on vocational research and development. Presented in the fourth group of papers are the views of five individual researchers pertaining to directions and approaches for vocational education research to take in the 1980s. Appendixes to the proceedings include a colloquium agenda and a list of colloquium participants. (MN)

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Vocational Education Research in the 1980s

Proceedings of a National Conference

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Editors

Henry David, Howard F. Hjelm and Robert C. Harris

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American Vocational Education Research Association
in cooperation with the
Coordinating Committee on Research in Vocational Education

Vocational Education Research in the 1980s includes the papers presented at the Colloquium on Vocational Education Research in the 1980s held at the National Academy of Sciences in Washington, D.C. on July 29th and 30th, 1982. These invited papers focused research programming in the light of national, state and local vocational education problems and policies; user needs; and the interests and priorities of individual and institutional performers of vocational education research and development.

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Preface

A major and dramatic shift is now in the making with respect to the Federal role in education and in support of educational research, including research on vocational education and related activities. Federal expenditures on educational research have been reduced in recent years and the priorities of the Federal agencies that support educational research have been changing. In addition, the authorizing legislation for vocational research is currently under review in connection with the larger issue of reauthorizing the Vocational Education Act. This is an opportune time to consider the building blocks out of which an effective research agenda on vocational education for the 1980s can be constructed.

To contribute in this effort, the Coordinating Committee on Research in Vocational Education (CCRVE) and the American Vocational Education Research Association (AVERA) sponsored a Colloquium on Vocational Education Research for the 1980s at the National Academy of Sciences, Washington, D.C., on July 29-30, 1982. A subcommittee of the CCRVE, consisting of Dr. Henry David, Chairman, Dr. Glenn Boerrigter and me, planned the Colloquium and was assisted in its organization by Dr. Rodney Riffel, National Institute of Education. The purposes of the Colloquium were to elicit and synthesize suggestions for research programming in the light of (1) national, state, and local vocational education problems and policies, (2) user needs, and (3) the interests and priorities of individual and institutional performers of vocational education research and development. The agenda for the Colloquium, which is reproduced in Appendix A, indicates how the effort to realize these purposes was in fact conducted.

The two sponsors of the Colloquium are deeply grateful to Dr. David Goslin, Executive Director, Commission on the Behavioral and Social Sciences and Education of the National Research Council-National Academy of Sciences. He made it possible for the Colloquium to be held at the National Academy of Sciences.

A word is in order about the sponsors. The Coordinating Committee on Research in Vocational Education was established by the 1976 Amendments to the Vocational Education Act. The legislated members of the Coordinating Committee are the Office of Vocational and Adult Education, the National Institute of Education, and the Fund for the Improvement of Postsecondary Education. The Office of Career Education, the Office of Special Education and Rehabilitative Services, and the National Advisory Council on Vocational Education are also represented at its meetings.

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CCRVE is concerned with research and the related program improvement functions for vocational education, career education, and education and work projects funded by the programs represented on it. It is charged by the legislation: to (1) coordinate the research programs of its member agencies, (2) establish national priorities, and (3) establish a project management information system. It deals with the first objective primarily through the review of program plans and projects at its regularly scheduled bimonthly meetings and contributes to the formulation of national priorities through its discussion of the program plans of the agencies represented at its meetings and by sponsoring seminars and other meetings at which research priority issues and research program plans are considered. It has achieved the project management information system objective through the production of Projects In Progress. This is an annual reference compilation containing key information about all ongoing projects in vocational education, career education, and education and work funded by the programs represented on the CCRVE, as well as other selected projects. Projects In Progress is published by The National Center for Research in Vocational Education.

The American Vocational Education Research Association is the professional organization of educational researchers active in the field of vocational education. It was organized in 1966 and is affiliated with the American Vocational Association, as well as with the American Educational Research Association through the Special Interest Group on Vocational and Technical Education. Its major purposes are to (1) stimulate research and development activities related to vocational education; (2) promote the development of training programs designed to prepare persons for responsibilities in research in vocational education; (3) foster a cooperative effort in research and development activities within the total program of vocational education; and (4) facilitate the dissemination of research findings and the diffusion of knowledge.

The Colloquium's sponsoring organizations hope that the presentations made available in these Proceedings, as well as the discussions which they generated, will stimulate systematic thinking about needed research programs in vocational education and about the preconditions for useful research, a theme touched upon by a number of the papers. Both those who provide support for research and development activities and those who engage in them will, I believe, owe a debt of gratitude to AVERA, which made this publication possible.

Howard F. Hjelm
Chair
Coordinating Committee on Research
in Vocational Education

September 1982

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PART I

Approaches to Research Programming

Research Suggestions from the Report of the Committee on Vocational Education Research and Development

Rupert N. Evans

In 1976 the Assembly of Behavioral and Social Sciences of the National Academy of Sciences published the report of its Committee on Vocational Education Research and Development. Although the official title of the report was Assessing Vocational Research and Development, it has come to be known as the "COVERD Report," from the acronym of the committee which produced it.

The study which led to this Report was commissioned by the U.S. Office of Education, but the members of COVERD were chosen by the National Academy of Sciences. I had the honor of chairing the committee, which worked long and hard, without pay. A list of the committee members is attached. It is interesting to note that six people on the program of this conference played key roles in the production of the Report. Duane Lund and Robert Taylor served with distinction as members; Gordon Swanson not only served ably as a member, but also chaired a similar committee which reviewed manpower research and development of the Department of Labor and produced a report which served as a model for ours; Howard Hjelm and Glenn Boerrigter provided much information and guidance; and Henry David was executive director of the Assembly when we made most of the decisions about our procedures. Many of those in this room provided information to us. The list of those involved reads like a Who's Who of research on vocational education and work.

Our task was to review ten years of vocational education research and development conducted under the auspices of the U.S. Office of Education. We wanted to, but lacked the resources to review similar programs conducted by the states. Indeed, the task of looking carefully at the results of an expenditure of $250 million of Federal funds consumed more than a year of tiring work.

Our most controversial finding was that "vocational education R & D shares with educational R & D a lack of both demonstrated impact on students and methods for rigorously measuring impact" (Committee on Vocational Education Research and Development, 1976, p. 1). The most controversial impact allegedly produced by the COVERD Report was the insertion of a phrase in the Education Amendments of 1976 which demanded that vocational education research conducted by state Research Coordinating Units "demonstrate a reasonable probability that the contract will result in improved teaching techniques or curriculum materials that will be used in a substantial number of classrooms within five years" (P.L. 94-482, 1976, Title II, Section 131(b)). A similar phrase applies to grants (but not contracts) which study problems of national significance and are

controlled by the Department of Education (Section 171(b)). It seems to me that there is general agreement that this language has had many detrimental and few positive effects on vocational education R & D.

In my opinion Section 131 has three objectionable parts: the requirement for contracts rather than allowing use of the most effective way of performing a particular task, the restriction of research topics to teaching techniques and curriculum materials, and the demand for results in classrooms within five years. It should be noted that these restrictions apply principally to State Research Coordinating Units; legally they do not apply to the great majority of R & D activities funded directly by the Federal government (though apparently they are applied there quite frequently also). I remind you that COVERD did not study the results of research conducted by state units, nor did it recommend any of the restrictions which were placed on the states. Thus, it does not seem reasonable to blame COVERD for what Congress did in 1976.

But change is always with us, and change is frequently not for the better. The Request for Proposal recently issued by the Department of Education for The National Center for Research in Vocational Education has even worse language which states that all designated studies under this contract "will be planned, designed, initiated and completed within a 12-month contract period." Apparently one part of the administration has gone beyond Congress in demanding that we become more and more committed to looking for quick fixes to inconsequential problems. One can only speculate that the next COVERD will find even less evidence of impact from vocational education research conducted under such conditions.

Research Topics

The purpose of COVERD was to assess research and its administration and to provide suggestions for the improvement of legislative and administrative procedures. It did not have a charge to suggest research topics. However, as it looked at past research priorities, it identified nine major research categories which seemed to encompass the great majority of vocational education research during the decade before 1976:

- Career development and guidance
- Students with special needs
  - Women
  - The disadvantaged
  - Adults
  - Ethnic minorities
- Characteristics of students
- Teacher education
- Instructional techniques
- Curriculum development
  - Curriculum content
  - Student needs
  - Occupational adaptability

Curriculum integration
Curriculum evaluation
Labor market supply and demand information
Administration of vocational education
Evaluation of vocational education programs
Occupational information
Job readiness of vocational graduates
Job satisfaction
Earnings
Follow-up studies (COVERD Report, 1976, Appendix A)

We reviewed the results of principal studies in each of these areas. We found that the only area to which continuing attention had been paid was the area of career development and guidance. It was clear that research in most areas was turned on or off like a spigot when the yearly priorities were established. Indeed, at one time it had been policy not to fund research in an area which had been a priority area for the preceding year!

We concluded that more was known in each of the areas than would have been the case without the Federal funding of research, but we found little evidence that instructional behavior had been modified substantially except as a result of curriculum research. I am afraid that if a similar study were done today, a similar conclusion would be reached.

To be fair, however, one should ask if legislative or executive branch behavior has been modified substantially by COVERD's research or by the research of others. My conclusion, surprisingly, is that COVERD has made little difference, but that the combined weight of many studies has changed the attitude of Congress, business leaders, and the general public toward vocational education and job training in general.

COVERD pointed out that research trains researchers and evaluators. As a result of this training they produce better research and better evaluations. These improved studies serve as benchmarks for further improvements in research, not just about vocational education, but also about other delivery systems for work education, about education as a whole, and about the formation of human capital.

They also provide a better basis for forming policy. The current positive legislative attitude toward training (as compared, for example, with the current attitude of Congress toward subsidized employment or income transfers) is, I believe, in large part a result of an accumulation of research and evaluations that point out the value of training to the individual and to society. If researchers were still designing faulty studies which compare the success of unlike groups (e.g., the labor market success of secondary school vocational and college preparatory graduates), as we did during the 1960s, they would still be concluding that vocational education does not pay off.

Obviously, many forces other than research results affect policy formation and other human behavior. The influence of these other forces, plus lethargy, suggest that one or two small, isolated studies rarely can change behavior significantly. Ten similar small studies can have considerable impact, if they are

done by different researchers with different biases, especially if they are done with different populations in different parts of the country. If the results of these studies are compared (meta-analysis), policy implications drawn, and the results disseminated to policy shapers, the result of ten studies is almost certain to be much greater than ten times the result of one study. Large, national, longitudinal studies can have similar effects.

I wish that I could say that our progress in the administration of research and in support of research has been as great as our success in improving the quality of vocational education research or in demonstrating the value of vocational education. COVERD made more recommendations about the administration of research than about any other topic, but it also recommended further support for research. Here is my score card on the adoption of COVERD's recommendations:

Recommendations Put Into Effect, Entirely or Substantially

1. Keep vocational education R & D in the vocational education operating branch.
2. Encourage female and minority researchers.
3. Combine the vocational education and adult education ERIC systems.
4. Fund studies on the needs of users of R & D products.
5. Conduct research on dissemination strategies.
6. Adequately fund a national center or centers for vocational education R & D.
7. Make RCUs responsible for research, dissemination, and curriculum development.

Recommendations Not Put Into Effect or Barely Touched

1. Consolidate research, demonstration, dissemination, and evaluation efforts.
2. Allocate 20 percent of Federal vocational funds for research.
3. Designate 50 percent of research funds for solving national or multi-state problems.
4. Provide funds for career education R & D separate from vocational education R & D.

5. Develop a systematic, open cumulative and data-based process for determining research priorities.

6. Use a mix of grants, contracts, and sole-source funding of research.

7. Use a two-stage review process, with writers of successful research prospecti encouraged to submit full proposals.

8. Establish a management information system for R & D, and use past performance of researchers as a criterion in awarding funds.

9. Adequately fund the Curriculum Center Network or disband it.

10. Award funds for each RCU based on periodic evaluation of its success.

Obviously, many of our recommendations have not been put into effect fully. Nevertheless, I believe that each of these recommendations is still valid.

Additional Recommendations I Wish COVERD Had Made

Much has happened during the seven years since the COVERD Report. Unquestionably the quality of research about vocational education has improved markedly and its effects on research about other human endeavors have increased even more. But other things have changed as well. We no longer behave as if we believe that education or government can do everything. We also recognize that our resources are finite and contracting.

With the benefit of such hindsights, it is easy to think of some recommendations that one wishes that COVERD had added. Here are some of my wishes:

1. Make RCUs responsible for research, dissemination, curriculum development, and personnel development and change their name to indicate that they are primarily responsible for program improvement in their states. Because everyone in a state office is supposedly responsible for program improvement, actually no one is really responsible.

2. Conduct more research on how to assess the impact of research. Only after our report was completed, did we begin to realize how little we know about how to assess the impact of research.

3. Review, each five years, the needs for change in the ways we educate people about work (including vocational education), with a study of research needs and accomplishments as an integral part of the total review. It is clear now that the reviews by the Willis

Panel of Consultants (1963) and the Essex Advisory Council (1968) have produced more positive and long lasting improvements in vocational education than have come from any other source since 1917. Moreover, they cost less than those other large-scale research, demonstration, or evaluation studies. Perhaps even better results could be achieved if we looked at all of the ways we provide trained workers, e.g., through military technical schools, CETA skill training, apprenticeships, business and industrial training (National Council on Employment Policy, 1982).

4. Continue to fund individual national vocational education research projects at a level of $5 million or more dollars each year. Frankly, none of us foresaw that programs of national significance might be cut to a level of $10 million a year or less, and that funding of new individual RFPs and unsolicited proposals would be cut out entirely in some years.

5. Establish a national longitudinal study to tell us more about the effects of various types, levels, and amounts of vocational education on various types of people.

6. Remove restrictions from RFPs and the law which emphasize short term planning and quick results. Their effect is to produce low risk, low payoff research projects. What we need are high payoff research programs.

My first priority among all of these recommendations is for a blue ribbon commission to review all of the ways in which society supplies skilled workers (including vocational education and its research and development programs), with a view toward recommending ways in which we can make major improvements in quality. There are demographic and fiscal reasons why any large increases in students or funds are unlikely. There are many reasons why quality should be improved. I am convinced that the quality of vocational education and of our other delivery systems for work education can be improved, even without spending more money. I am also convinced that plans for this improvement will have to come in part from outside the profession and from outside of government. Some of my friends tell me that a national commission cannot be appointed in today's political climate. Perhaps so, but I believe that one is needed, so I will continue to push for it.

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Committee on Vocational Education Research and Development. Assessing Vocational Education Research and Development. Washington, D.C.: National Academy of Sciences, 1976.

National Council on Employment Policy. A Vocational Education Policy for the 1980s. Washington, D.C.: The Council, 1982.

Alternative Vocational Education Research Agendas

Henry David

Plausible research agendas may be fashioned in several different ways. In the case of the traditional disciplines, they are generally shaped by perceptions of promising next steps in the light of a discipline's history and logic of development. That is to say, a reading of the current state of the art and the opportunity structure for further advances are powerful determinants of future research programming. In the case of fields of study in which a variety of disciplines can be enlisted for the conduct of inquiry--such as education, urban life, the environment--research programming may be shaped by perceptions of problems that prompt action, by policy decisions with respect to those problems, by policies actually in operation, or by the results of policy or program evaluations.

In the field of education generally, including, of course, vocational education, Federal policy considerations have for almost two decades shaped successive declarations of research priorities. These in turn exercised powerful influences upon the programming of research funded by Federal dollars. As a result, federally-supported research in the field of vocational education has been largely mission-oriented. To a much lesser degree has it been influenced by theoretical and empirical developments in the social science and other disciplines whose scholars engage in educational research. It is not an exaggeration to say that both research continuity and cumulative building of knowledge bases have, consequently, been victims of short-lived, changing priority schemes.

A conventional technique used for developing research agendas is that in which we are engaged here--that is, to elicit from research experts and users of research results their sense of the content and anticipated outcomes of plausible and productive programs of research activities. In a moment, I will report on a modest effort made by the National Institute of Education to do this a little over five years ago not for the field of vocational education as such, but for the larger and less-well bounded domain of the relationship between education and work.

A Research Agenda in the Field of Education and Work

In April 1978, the National Institute of Education convened a small group charged with the task of developing a Research Agenda in the Field of Education and Work. Of the ten

individuals from within and outside of education who engaged in that effort, one is also participating in this Colloquium--Gordon Swanson.

A word on the genesis of that meeting is, perhaps, in order. The appointment in 1977 of a new Director of the NIE, Dr. Patricia Albjerg Graham, was followed by an irresistible impulse to reorganize the Institute. This resulted in the elimination of the organizational entity responsible for the research program in the area of education and work. This consequence prompted protest by vocational education officials, practitioners, and researchers. The Institute hoped that the Research Agenda meeting would allay the concerns expressed by these interested parties, as well as demonstrate its continuing interest in research on the relationship between education and work, broadly conceived, and in the Congressionally-mandated priority area of "preparation of youths and adults for entering and progressing in careers." The findings of the "research agenda" meeting, on which a report was issued in October 1978, were, according to Director Graham, to be used in the research, development, and dissemination activities of the three major program areas of the reorganized Institute.

The research questions and tasks set forth and discussed during the "research agenda" meeting lent themselves to being grouped into seven issue areas, several of which have continued to be prominent in subsequent considerations of education and work research programming. Presented in the order of descending importance in which they were ranked by the participants, the seven research areas, together with examples of specific inquiries for each, are as follows:

1. The first issue area consists of research "on the employment (demand) side of the education and work relationship," which would include investigations into "the barriers to youth finding jobs" and into the characteristics sought by employers "when screening new employees."

2. The second embraces research "on experienced-based approaches to learning about work," including comparative assessments of "the various modes of combining education with work" and inquiries into the kinds of incentives that would lead industry ... to develop and provide the education its workers need."

3. The third area centers on research "on attitudinal factors ... including the influence of students' attitudes upon getting and advancing in a job and attitudes toward vocational and career education ...." Here, specific inquiries were proposed into student attitudes toward vocational education by sex, race, and ethnicity, and into the relative importance assigned by employers to skills and work attitudes when they screened job applicants.

4. The fourth issue area covers Federal financing of education and, the relations among Federal, state, and local government policies and programs affecting education and work. Candidate subjects for inquiry

included the effects of Federal funding upon "State and local investment choices, policies, plans, and standards," "the relative costs and benefits of the ... CETA model of training versus the ... Vocational Education model," and the coordination and focusing of the several relevant Federal programs so as to meet the educational needs of young workers and enhance their employment opportunities.

5. Equality of educational opportunities constituted the fifth issue area and embraced investigations into "the role of schools in providing for social mobility;" the determination of "What kinds of investments, in what sorts of programs ... can make the greatest contribution to achieving mobility for disadvantaged groups;" and studies of "institutions that have been successful in eliminating biases and discrimination."

6. The sixth area comprised "research on competency testing, minimum competency standards and the credentialing process," and called for testing "the ... assumption that there is a relationship between acquisition of basic competencies--reading, writing, and arithmetic--and youth employment." Other questions proposed for inquiry were whether "the minimum competency standards "movement" would "put vocational schools (and vocational graduates) at a disadvantage" and the consequence of increased use of competency tests for equality of employment opportunities.

7. The seventh and final issue area covered research "on career guidance and counseling," in which inquiries were called for into ways for improving the transition from school to work, into the factors influencing occupational choice, and into the attributes and experiences of counselors that contribute to making them more effective.

I take it for granted that each of these examples of what were viewed as worthwhile topics in 1978, as well as the larger research programs areas which they illustrate, could readily find an ardent advocate today. That is not surprising. So far as I can judge, the questions that stand behind them have not been effectively answered--that is to say, taken out of contention by conclusive research findings--in the intervening years. In short, the requirements for information that warrant action and significantly reduce the risk associated with acting on weak and partial knowledge are not quickly or easily satisfied.

Research Programming from the Perspective of the Vocational Education Study

I spoke earlier of a meeting such as this as a conventional technique for developing research agendas. I turn now to another device. And that is to reflect on the substantial research effort undertaken in carrying out the NIE's Vocational Education

Study, mandated by the Education Amendments of 1976 (P.L. 94-482), and to ask what its implications are for vocational education research programming in the future. That Study, which I directed, was, as most of you know, formally completed last October with the transmittal of The Final Report (National Institute of Education, 1981) to the Congress and the President.

The investment of the Study's available resources in research, both extramural and intramural, was heavily determined by the four topics which had to be investigated under the Congressional mandate. These were (a) "the distribution of vocational education funds in terms of services, occupations, target populations, enrollments, and educational and governmental levels;" (b) "an examination of how to achieve compliance with, and enforcement of, the provisions of applicable laws of the United States;" (c) "an analysis of the means of assessing program quality and effectiveness;" and (d) "a review and evaluation of the effectiveness of programs funded under" the Consumer and Homemaking Education provisions of the 1976 legislation.

The Vocational Education Study was not limited to these four themes, but its key features were shaped by them. The Study is best viewed as "a policy inquiry, centering on the purposes, structure, implementation, and consequences of Federal vocational education policy ... an inquiry ... (seeking) to ascertain in which respects, if any the 1976 amendments to the 1963 Vocational Education Act influenced changes in the Nation's decentralized and highly diversified public school vocational education enterprise" (The Final Report).

A policy inquiry marked by these objectives, and constrained by the resource base available to it, obviously ignored many significant lines of inquiry which, if pursued, would have contributed to a fuller and more sophisticated delineation of the vocational education enterprise and to a better understanding of both its operating characteristics and of its strengths and weaknesses. At the same time, the research that was pursued and its results pointed to either further or new lines of investigation, the basis for which had not earlier been either fully apparent or appreciated.

I solicited from my former colleagues on the Vocational Education Study staff their sense of what they learned for future research from the perspective of participants in the Study. This is the same question I put to myself. Almost all of them responded with suggestions, some of which are incorporated in the brief observations on research programming for the 1980s that follow, for which, however, I assume sole responsibility.*

The findings of the Vocational Education Study rest in good part upon a single year's data base, and this points to the need for systematic follow up on the consequences of Federal policy for subsequent years, as the data become available, whether the present legislation continues or is significantly changed.

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*Those who made suggestions are Louise Corman, Gerry Hendrickson, Rodney Riffel, and Stuart Rosenfeld.

One original objective of the Vocational Education Study was an investigation into intradistrict differences and patterns in funding. This could not be secured in the absence of approval by the Committee on Educational Information Systems of the Council of Chief State School Officers and the Federal Education Data Acquisition Council. This remains a compelling research objective in view of the extent to which decision making at the local level is critical in the enterprise.

Research programs should be pursued to continue to exploit both the older and the newer longitudinal data bases to illuminate further the consequences of enrolling in vocational education programs for the subsequent labor market and educational experiences of individuals. The NCES High School and Beyond data could conceivably be used to throw light on the role, if any, of vocational education programs in preventing drop outs and on the reasons why secondary school vocational education graduates go on to postsecondary study. Knowledge about the relationship between particular vocational education programs and labor market outcomes for individuals still remains rudimentary. This question should invite a greater research emphasis in the future.

A largely unexamined question is the influence that the organizational attributes of school institutions--such as their size, structure, and location--may exercise upon the strengths and weaknesses of vocational education programs. Research along these lines would contribute in part to a better understanding than is now available about which kinds of formal school settings are more effective than others for which kinds of students.

Both individuals and units of government lack the knowledge which would help in making informed, rational decisions on how best to balance investments in education generally against investments in vocational education specifically. A research program focused on this problem area could also result in providing improved information bases for calculating trade offs between investments in education and those in training, as well as trade offs between investing in providing better information about current occupational knowledge and skill requirements and investing in achieving better information about occupational knowledge and skill requirements likely to be needed in the future.

The Vocational Education Study was concerned with Federal policy and the response of the states and localities to that policy. Had resources been available, it would have undertaken a systematic parallel study of state and local policy structures and content. This should constitute an important research program area in the future. In the absence of adequate knowledge about state and local policies, the understanding of how the vocational education enterprise is shaped by policies on all three governmental levels remains very partial, indeed.

The final suggestion for research programming centers on a problem which the Vocational Education Study understandably ignored and on which it is admittedly difficult to mount an attack. Yet, the problem is central to a Federal policy which seeks to assist the states in providing "ready access" to vocational education of "high quality" in all communities for all

persons regardless of age and of handicapping conditions, "which is suited to their needs, interests, and ability ...." (U.S. Congress, 1976, Sec. 101).

The problem is to show, if possible, how the family and social setting of individuals, the traits of individuals, and their personal experiences interact with vocational education and training, as well as one another, with respect to the learning and working experiences of individuals. Obviously, successful research attacks upon this problem would have profound implications not only for vocational education but also for the educational enterprise as a whole.

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Federal Priorities and Patterns of Research Support, 1974-82

Glenn C. Boerrigter

There are two major parts to this paper. The first provides a description of and setting for the support of Vocational Education Research and Development (R & D) during the past nine years. This contextual setting is especially important in understanding the Federal priorities that were established and supported during fiscal years 1974-1982. The second part of the paper discusses the substantive priorities for this nine year period of time.

Description and Setting

Although research in vocational education had been authorized several decades earlier, special authorizations for such research did not occur until the Vocational Education Act of 1963, and the first funds were not appropriated until fiscal year 1965. In 1968, Congress amended the Vocational Education Act. The amendments included three separate authorizations affecting research and related activities. Under Part C of these Amendments, the Commissioner of Education was authorized to support research, curriculum development, demonstrations, and training with respect to the results of R & D. The Commissioner was required to establish state allotments in the distribution of the Office of Education's one-half of the funds. The remaining one-half of the funds were distributed on a formula basis directly to the states. The states were authorized to spend their funds for the same purposes as Federal government, but in addition the states were authorized to establish Research Coordinating Units. Under Part D of the Amendments, the Commissioner was authorized to support demonstration projects with one-half of the appropriated funds on a state allotment basis. The remaining one-half of the funds was provided to the states on a formula basis for their use in supporting demonstration projects. Finally, Part I of the Amendments authorized the Commissioner to support curriculum development and related activities. Allotments or sharing of funds with the states were not required under this part of the Act.

The enactment of the Education Amendments of 1976 changed the character and management philosophy of vocational education R & D. In brief, this legislation consolidated the authority for R & D under Subpart 2--Programs of National Significance and added a personnel development component. The legislation authorized the support of a National Center for Research in Vocational Education and described six major functions to be

performed by it. The legislation eliminated the state allotment requirements, but mandated that states use 20 percent of the state formula funds for research, demonstrations, curriculum development, personnel development, guidance, and grants to overcome sex bias. The law also allowed the states to establish Research Coordinating Units with authority to award contracts for research, curriculum development, and demonstration activities. During the past five years the states have supported approximately 800 research, curriculum development, and demonstration projects per year with approximately $20 million of funds each year. Approximately one-third of the projects were applied research projects, one-third were curriculum development projects, and one-third were demonstration projects.

The Federal Programs of National Significance have been administered primarily as contract programs. These programs are designed to be the Federal thrust for the improvement of vocational education and to impact heavily on the discretionary program improvement funds of the states, which are administered by the Research Coordinating Units.

In addition to the Federal Programs of National Significance, the Education Amendments of 1976 authorized one other discretionary program, the Indian Vocational Education Program. The Bilingual Vocational Education Program, first authorized in the 1974 Amendments, was modified by the 1976 Amendments. While these two programs are primarily training programs, they are part of the total Federal discretionary program strategy for extending and improving vocational education. Therefore, in this context the two programs also constitute Federal priorities for program improvement.

The provisions of Programs of National Significance should be viewed as representing a total strategy for R & D and training in order to bring about program improvement within the states. Functionally, applied studies, curriculum development, demonstration, dissemination, and personnel development and training are supported by these programs. In this context, information and products are both collected from and disseminated to the states, and the states use these products and information in their dissemination efforts.

Under Programs of National Significance, funds and support have been provided for the following activities.

1. Projects of National Significance. Nationally significant applied studies, development activities, and curriculum development projects are competitively awarded as contracts in Federal priority areas. These projects are from one to three years in duration and normally contain both training workshops and dissemination activities to the states.

2. Curriculum Coordination Centers. Six curriculum coordination centers are supported. These six Centers serve specific geographical areas in the nation. Each center assists the states in preventing duplication of effort, in disseminating curriculum materials, and in conducting training appropriate for curriculum development and the installation of new curriculum.

3. The National Center for Research in Vocational Education. This Center performs six legislatively mandated functions, which are:

   a. Applied Studies. The Center conducts independent and designated studies. Each contract year, the Department designates several studies, and the Center, with the advice of its Advisory Council, selects several other applied studies to be conducted.

   b. Information for Planning and Policy Development. Studies and analyses are conducted that are of use to the Federal government and the states concerning the trends, the effects, and possible future directions of vocational education.

   c. Evaluation Services. Evaluation information, products, and manuals are produced for use by the states and local educational agencies in evaluating their vocational education programs.

   d. Clearinghouse. The Center operates a Clearinghouse for all on-going Federal-and state supported R & D projects, as well as for the completed final technical reports and products of these projects. The Clearinghouse is tied in with the Eric Clearinghouse System and other major clearinghouse systems.

   e. Dissemination and Utilization System. Information and products are systematically disseminated to the states and to other users. Targeted disseminated activities are undertaken each year for selected products and technical assistance is provided to the states in the utilization and installation of these products.

   f. Leadership Development. An advanced study Center provides support for approximately six post-doctoral fellows each year. A National Academy provides short term training for more than 2000 persons per year on a cost-recovery basis. In addition, in-residence training is provided for approximately thirty persons per year.

4. Graduate Leadership Development Fellowships. Fellowships were awarded to 155 persons to date for up to a three year duration to do graduate work.

5. Teacher Certification Program. Fellowships were awarded to 188 persons to date for training up to two years duration in order to become certified or recertified teachers in vocational education.

6. National Occupational Information Coordination Committee. Funds have been allocated to NOICC and the fifty-seven State Occupational Informational Coordinating Committees.

With this brief description of the legislative history of vocational education R & D and the types of programs that were supported from FY 74 to FY 82, it is important to make several observations concerning this support and its impact on the priorities and patterns of research support. During the period FY 1974-77, Federal support under Parts C and D of the Amendments was provided for applied studies, developmental activities, curriculum development, and demonstration projects. These awards were made within relatively small state allotments, and as a result were normally focused on problems that were of state or local significance.

With the 1976 Education Amendments a radically different form of Federal support became evident. These Amendments (1) formally created a Nationwide Network of R & D in vocational education at the state and Federal levels; (2) established a more structured contract mode for the management of R & D; (3) clarified the Federal and state roles for the support of R & D; and (4) emphasized the additional functions of an information or clearinghouse system, dissemination, and personnel development as part of a nationwide system of program improvement for vocational education. In addition, Federal support of R & D tended to be limited to activities that were of national significance and that would benefit all of the states through applied R & D activities, such as clearinghouse, evaluation, and dissemination and utilization, functions, provision of information for policy development and personnel development mechanisms, and state and Research Coordinating Units.

Priorities and Patterns of Research Support

This section of the paper discusses the Federal priorities and patterns of vocational education research for a nine year period of time. The chart which follows displays, through the use of key words or short phrases, the substantive priorities. These written priorities are discussed in greater depth later. However, there are other priorities and patterns of research support that are not shown by this chart, and these will now be discussed.

The word "research" is used to cover all of the functions of an R & D system or network. In vocational education there is a nationwide network of institutions and organizations that facilitate the broader concept of the word research. This concept deals with program improvement and all of the functions that are needed in a nationwide program improvement network or system. Consequently, if one views the priorities and patterns of research support from 1978-82 from both a functional and networking point of view, he or she would find unwritten priorities or patterns of support that result in:

1. Very little basic or fundamental research being supported with vocational education funds.

FEDERAL DISCRETIONARY PROGRAM PRIORITIES

FY 1974 - FY 1982

FY 1974	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980	FY 1981	FY 1982
1) Disadvantaged, Handicapped and Minorities 2) Work experience	1) Personnel serving the Disadvantaged, Handicapped and Minorities	1) Special populations	1) Education and work	1) Disadvantaged and Minorities 2) Handicapped	1) General Education 2) CETA-Vocational Education 3) Handicapped and Disadvantaged	1) Basic Skills 2) Education and work 3) Special Needs	1) Youth Employment	1) Youth Employment
					4) Urban and Rural	4) Urban and Rural	2) Community Economic Development and Productivity	2) Private Sector 3) Entrepreneurship
			2) Equal Access 3) Sex Bias	2) Women	5) Equity 6) Accessibility	5) Equity	3) Access and Equity	
1) Curriculum Studies	2) Curriculum and Installation Studies	2) Individualized Vocational Instruction	4) Curriculum Management	4) Excellence		6) Program Improvement and Accessability		
		3) Adults 4) Post-secondary	5) Adults and post-secondary			7) Adults		
						8) Energy	4) Energy	
4) Manpower	3) Administration-Local 4) Administration-State				7) Planning, Accountability and Data	9) Data, Accountability and Evaluation		
5) Guidance	5) Guidance				8) Guidance	10) Guidance		
								4) Defense Preparedness
								5) Technology

2. The very limited support of some applied, decision oriented, and policy-oriented projects.

3. Projects of national significance that tend to be developmental and action-oriented activities, having products that can be used by vocational education practitioners rather than by researchers involved in information gathering or information analysis activities.

4. Substantial amounts of funds being used for networking activities and for dissemination, clearinghouse, knowledge translation, awareness building, and training activities regarding the results of R & D.

5. Substantial amounts of funds being spent on personnel development types of activities through fellowships, the Curriculum Coordination Centers, and the National Center for Research in Vocational Education, as well as through workshops supported by projects of national significance.

6. Most of the research support and priorities being focused on problem areas that are of interest to the states rather than of direct use by the Federal government.

7. Priorities and patterns of research support normally being established for the purpose of awarding projects in predetermined substantive area, with these priorities tending to be found in the activities of the National Center for Research in Vocational Education and the six Curriculum Coordination Centers, as well as across the various research functions.

In addition to the Federal priorities shown in the chart, the National Center for Research in Vocational Education has operated under the four programmatic themes appearing in the legislation. These are: (1) comprehensive planning, (2) special populations, (3) sex fairness, and (4) evaluation.

The chart shows the discretionary Federal priorities for vocational education research over the nine years. The columns reflect the priorities by fiscal year and the rows reflect the patterns of support over the nine years. The priorities are numbered by fiscal year, but this does not indicate that one priority is more important than another. It should be noted that, in a number of cases, several priorities within a given year are listed in a single row or a pattern of support. The grouping of priorities into patterns on this chart is the product of the author's judgment on which ones may be classified together. Examination of the chart indicates that:

1. The number of priorities established per year ranges from four to ten, with five priorities being the most commonly established number.

2. While the Federal priorities do tend to change from year to year, there tend also to be patterns of priorities over the nine years, if they are viewed broadly enough.

3. Although the Federal government awarded grants during FY 1974-77 and primarily contracts during FY 1978-82, the patterns of support tended to remain similar under the different management modes, probably because of three reasons: (1) long-term problems, many of which are (2) of interest at the state and local levels, and (3) they are broadly classified to encompass a series of sub-problems.

4. Only one row or pattern of support of the ten shown on the chart covers the nine year period of time. However, six rows or patterns show four or more years of support out of a possible nine years.

5. While priorities tend to change and reappear, there are discernible patterns of support.

This discussion of priorities and patterns of support has ignored thus far the questions of who received support and who conducted the research activities. It is safe to say, without going into detail, that educational institutions such as local schools, State Departments of Education and postsecondary institutions tend to win more competitive grant competitions than profit or non-profit research groups. Under the competitive contract management mode, profit-making and non-profit research groups tend to win more competitions than educational institutions. Thus, the pattern of who is supported can and sometimes does become a bigger issue to the Federal government than the priorities.

Summary

In brief, this paper has described the Programs of National Significance and provided the contextual setting for a program improvement strategy. This strategy includes a nationwide network of agencies, organizations, and required research functions, as well as priorities or patterns of support for research. It also indicates that the substantive priorities that are established for the support of Federal projects influence the type of support across the broad spectrum of R & D activities. Finally, it takes the Federal priorities that have been established for the past nine years and depicts how they may be organized by patterns of support for both the discretionary grants and the contracts that have been managed by the Federal government during the past nine years.

PART II

National Perspectives on Research Programming

Observations on Research in Vocational Education, 1982

Howard A. Matthews and W. Douglas Campbell

The authors want to acknowledge up front that they have a healthy respect and admiration for those who do research in the important but little understood area of vocational education. In many ways serious research in vocational education is still in its childhood. Nevertheless, we have come not to praise vocational education research, but to assess some of its weaknesses, pointing out areas that need improvement and offering along the way a few suggestions. Hopefully, this approach will be constructive and useful, and we again emphasize that we are not ignorant of the good things happening in the field simply because they are not dwelt on here.

These remarks are based not only on personal experience in vocational education, but upon recent comments of a variety of people from around the country involved in research in vocational education and other fields, in the administration and teaching of vocational education in both public and private sectors, and in private business. They also draw from a review of an ERIC compilation of abstracts of the 267 research-related publications in vocational education issued since January 1, 1980.

The discussion will begin with a discussion of four areas of inquiry (which are not meant to be mutually exclusive), and will then finish by reviewing problems and challenges common to the wide range of vocational education research.

The first area of concern is described by the phrase "problems of national significance," a major focus of Federal level programs under the Vocational Education Act. The assessment here is easy--very little is being done to address issues with an especially "national" character. In the ERIC bibliography, for example, there was not a single document devoted exclusively to vocational education's role in responding to the shortage of skills needed by the military, and only one item gave the issue any significant treatment. It should be noted that this does not imply a complete absence of research in this area in the United States, but the frequency of appearance in the ERIC bibliography is probably a reasonable reflection of the relative attention a subject receives in the vocational education research community. Likewise, only a few general studies were attracted to the role of vocational education in the reindustrialization of our national economy and in the massive retraining effort which will be needed to adjust the work force to the demands of new technologies and the disappearance of old occupations.

One of our most pressing national problems is the increasing burden of our prison population. Vocational education has been

recognized as an important component in rehabilitation for many inmates, but one recent study acknowledged that we are just beginning to study this area. Thus, there remains a lack of research, evaluation, and data collection on vocational education in the peculiar prison context.

A second area of inquiry, which has received much greater emphasis, is that of teaching, curriculum, and leadership improvement. Here we are afraid we expend far too much effort simply reprocessing lessons learned in other fields of education and attaching the "vocational" label to them. Among the most studied of all "vocational education" topics is teaching procedure--how to plan lessons, use facilities, etc. Not only does this divert research resources from more pressing subjects, but teachers who really hop on this bandwagon can, with a devotion to formal criteria and procedures worthy of a Japanese tea ceremony, become obsessed with technique, and how a professional should structure a given course.

Similarly, we see examinations of the relationships among the various levels of administration and teaching which seem uninformed by a knowledge of current organizational behavior theories and research.

From a different perspective, how much progress can we make in research on teaching in vocational education as long as, according to one paper, "information is not yet available on the level of basic skill acquisition of students in different vocational programs?" One who does not know where he has arrived has little hope of wisely directing his steps in the future. Furthermore, materials directed to teachers tend to miss their mark, partly because serious research is often indigestible by the practitioner, partly because he lacks the time or resources to keep up. It would be well to see greater involvement by state and institutional specialists in screening the literature and in making exposure to the best readily available, if not mandatory.

One of the most important targets of research is centered around the question of student outcomes, though even here our involvement is generally lacking in depth and in sophistication. The recent literature is relatively heavy on subjective "satisfaction interviews" and light on longitudinal studies, of which there are only a couple, and on quantitative measurements of the post-training benefits of various vocational education programs. There is little directed to the interplay of important behavioral processes in vocational education, and much of this is elementary. We seem to avoid, for example, dissecting the continuing high drop out rate in vocational education. There is an acute need for a greater familiarity among researchers with the principles of psychology and a willingness to apply them to such problems.

Further, we must look at outcomes objectively and ignore any possible embarrassment from the results, thus we must put accuracy first.

If it is true, as some claim, that employability skills are not being taught in vocational education generally, we need to know why not and what to do about it.

But in our view the greatest shortcoming of vocational education research to date is its failure to provide guidance to policy makers. This criticism encompasses some of the points already made, and is to a significant degree responsible for the continued, excessive politicization of Federal vocational education legislation. In the absence of solid research findings on which programs and approaches work, the rhetoric of special interest advocates will generally carry the day and become reflected in law.

The goal of course is not simplistically to end the inquiry with a judgment of which programs work and which do not, but to identify, among those that do, which are better, which are least costly for a given outcome, which are most equitable, and what level and type of benefit can be expected from given program changes. Very little of the recent literature is useful in this sense. For some reason we do not tackle the hard questions, like "What are the quantitative results of set-asides and what degree of inefficiency results from their imposed inflexibility? Are they worth the hassle?", or "What kind and degree of differences are found among graduates and outcomes in states with vocational education programs considered exemplary and those considered passe?"

We seem to be incapable of performing cost/benefit analyses with any degree of confidence. Although recent positive steps have been taken in studies addressed to the feasibility and techniques of cost/benefit analyses, little movement has yet resulted, perhaps because too few researchers possess the level of mathematical, statistical, and econometric skills needed. On just the benefits side, we still have reams of instructions for designing evaluations, but few evaluations themselves.

Nor has there been much interest in questioning the basic assumptions upon which our current system of vocational education is based, or in exploring alternatives. For example, what is the American experience, if any, with formalized career exploration and work experience programs like those in Canada and Europe? What are the practical or structural impediments to the use of part-time local experts to teach or assist in vocational training? Can and should these obstacles be overcome?

Are we assuming too much for vocational education? A Yale paper examines the values and outcomes of general, disciplinary and "instrumental" or vocational education and concludes from the research that the large increase in instrumental/vocational graduates "does not represent a better articulation of education and employment, nor does it constitute a productive social investment." Whether we like those words or not, they reflect a legitimate inquiry which has been unfortunately neglected. Likewise 1980 and 1981 studies from The National Center for Research in Vocational Education report that "considerable uncertainty still exists over the effects of vocational education." How can policy makers be expected to make rational decisions in such a vacuum? They must be able to rely on solid research.

Issues of this breadth lead naturally to a discussion of some problems common to much vocational education research regardless of its specific subject. First, our research efforts

to date have largely focused on the education community itself, especially the public secondary and post-secondary vocational segment. The research tends to ignore the accumulated wisdom of private industry and business, by far the largest vocational trainers in American society. The body of research and experience in the labor/private enterprise sector--in the area of cost-effectiveness, for example--is often woefully unappreciated and unassimilated by vocational education researchers, thus giving their work a parochial, cloistered flavor which undermines its credibility outside of their own club. The research needs to borrow more from such areas as cooperative education and manpower training, and to take advantage of data wherever it exists, whether in longitudinal studies in other fields or in the decennial census.

The same criticism holds for the isolation of vocational education research from that of other academic disciplines. A frequently made assessment is embodied in the words of one scholar who, upon a review of recent vocational education research, remarked that the studies were "not remotely in touch with current work" in other fields, such as economics, labor statistics, law, political science, and psychology. This is perhaps an overstatement, but by how much? Vocational education needs the benefit of the best expertise in each field, and we must solicit it at whatever school or university it is to be found. It is revealing that in the ERIC bibliography, materials from major universities, outside of Ohio State, total only a couple of dozen among 267 entries, and items from first rank research institutions could be numbered on one's hand.

Part of the problem in this respect is that vocational education has not attracted the attention of the top figures in other fields. It does not promise the same high visibility or compensation they may obtain elsewhere, and it is not well known or understood in the academic community. This then is largely a selling job--we have to increase awareness of the size of this enterprise, its importance to the stability and economic welfare of our nation. We have to reach out and seek the participation of these experts in projects we formerly kept to ourselves.

Conversely, those who are already interested in vocational education research often lack leading-edge skills, or do not use them with sufficient poise and imagination. In this regard researchers need to be engaged in a continuing process of upgrading their own theoretical and analytical skills, or developing ever greater accuracy and sophistication within the natural limits imposed by the nature of vocational education.

Another area requiring more attention is that of technological impact. We must concentrate on current and coming changes in the work force, changes in the requirements of industry. We need to develop reasonable scenarios for the future and establish the processes that will enable us to respond without wrenching adjustments and unemployment down the road. For example, it may well be that in ten to twenty years most people will not have to go near a college or vocational school to obtain what vocational education will have to offer. Through communications equipment in their own homes they may indirectly eliminate the labor-intensive system of teaching which has prevailed since the advent of written history.

Even in the more immediate future, the explosion of new occupations and the prohibitive cost and rapid obsolescence of the equipment used in related training raises the real question of whether traditional vocational education will ever be able to catch up with private industry training programs in these areas. At the very least we must examine the possibilities.

Unfortunately, many schools are still dedicated to training their students in archaic crafts for which demand is depressed and will probably never recover. Too many researchers are still spending their time in tedious descriptions of the status quo, or are experimenting with only the most unremarkable variations thereof. We are still too enraptured with the elegance of procedure and planning rather than the hard, but satisfying, pursuit of results, of useful knowledge, of healthy change. We have to reassess our priorities and leave aside the marginal, if we are to build real momentum, real quality. We need work on putting out, if necessary, fewer, but first-rate, in-depth, narrowly-defined studies instead of a large number of superficial works. Many papers try futilely to handle absurdly large topics like "Factors Influencing Job Placement" in 25 pages or less, with the predictable result that no one wants to read them.

Some of these weaknesses are the result of Federal laws or practices, such as, for example, the requirement that projects be restricted to short terms. We need more longitudinal studies, more flexibility for groundbreaking projects, even if the application will not be next year. To a significant degree we at the Federal level have gotten just what we asked for, and it ill behoves us to complain. But our affection for vocational education has required the voicing of an opinion. Concern for its health has compelled us to point out the extent of its illness.

Of course, this overview has of necessity been one of generalities, and we acknowledge that there are many exceptions, much good work being done. But the problems are real. After all, even one or two brilliant studies on integrated circuits or the effects of fatigue on thought processes will scarcely close the book on these subjects. So it is in vocational education. The point is that there is not <u>enough</u> happening. We are not putting our research man-hours where the need is; we are not buying enough expertise with our money; and we at the Federal level are perhaps at once asking our research community to respond to low priority research concerns and to perform too many other functions.

In any event, this time is undeniably an exciting one. There is a growing awareness of the possibilities in vocational education research, and a growing appreciation of vocational education outside of the profession.

It is our sincere hope that we are on the threshold of a new era of research, quality research second to none on timely issues. This research will, as we move forward, contribute immeasurably to the beneficial restructuring of the entire work training process in this nation and will help ensure that the future witnesses a renewal of our national productivity and welfare. Those who have chosen to assist in this great design should be congratulated and given every encouragement for all our sakes.

A National Perspective on Research Planning for the 1980s

Charles W. Radcliffe

The view from "the Hill" on virtually any subject is likely to be cast in the light of legislative needs. The Congress appears to have developed a five or six year cycle of making substantial revisions in the 1963 Vocational Education Act which it will repeat next year. Hopefully, this third major rewrite of the 1963 Act will determine the Federal role in promoting vocational education for the rest of the decade and beyond. If the new legislation is going to be the best possible product, in that the Federal role it defines will effectively promote the development of vocational programs addressed to employment needs of the 1980s, there is much that the Congress needs to know about those needs.

From my perspective, the things Congress needs to know to write effective legislation next year are the same kind of things it needs to study on a continuing basis in order to monitor the effect of new legislation and make adjustments as indicated. In large part the kinds of things Congress needs to know on a national basis are identical to information required at the state level for intelligent program planning, with the caveat that actual program planning at the state and local levels requires a great deal additional information of a different sort, which suggests a somewhat different state and local perspective on research planning.

What does Congress need to know to legislate and evaluate its work in this field? I think there are five general areas in which more and better information--and better assimilation and use of information--is required.

(1) We need to make far better use of demographic studies to ensure that a new Act fully takes into account the actual composition of the work force, and to the extent that existing demographic research may not produce information relevant to vocational planning it should be revised to do so.

(2) Occupational information systems must be strengthened and refined to produce useful guidance for program planners on a local level where the work force and employers actually meet; we need to research methods for doing this and for institutionalizing those methods.

(3) Having accurately described and forecast changes in the characteristics of the work force and the job market, an intensive research effort is needed on two fronts--

(A) the most effective methods of preparing that

work force for available jobs, and

(B) the most effective methods of getting people who need education and training into the appropriate programs.

(4) Congress needs the best information it can get on the strengths and weaknesses of vocational education and the effectiveness of the legislative methods it has chosen to achieve whatever it perceives to be national objectives; perhaps this implies that we need to continue Dr. David's (that is, the National Institute of Education) "Vocational Education Study."

(5) Finally, we need to integrate and synthesize relevant information obtained from economic, social, and educational research and analysis so that we can make better informed judgments in shaping the objectives of national legislation and do a far better job of harmonizing and coordinating Federal programs and policies across the board--which may be a roundabout way of saying "we need to have a national policy on education, training, and employment."

This last may be the most difficult for the Congress itself to implement, because, even if we succeed in obtaining useable data about all the many factors that affect education and employment, our committee structure makes it difficult to bring it to bear on legislation. On our own Committee, in legislation in which labor policy and education policy come together--notably employment and training legislation, vocational education, and labor standards as applied to juveniles--the coordination of those policies has been difficult and somewhat haphazard. Our labor subcommittees and our education subcommittees, even with overlapping membership, have a distinctly different orientation--almost as much as between the two departments in the Executive Branch. Policy coordination between committees, even with referral of bills to more than one committee for concurrent or sequential consideration, is even more difficult. Congress needs help in examining its own procedures to minimize problems of policy coordination.

In planning and carrying out the kinds of research we are discussing, we need always to recognize that the findings of social science research inevitably have political implications, and that the individuals carrying out such research are seldom political neuters. Social scientists probably think of their research as being as innocent of personal ideological influence as that of Watson and Crick in discovering the double helix structure of the DNA molecule. I think that is seldom the case.

Moreover, the same data are analyzed differently. Recently Carl Rowan used his syndicated column to severely criticize Clarence Thomas, the new Chairman of the Equal Employment Opportunities Commission, for allegedly stating that lack of skills, rather than racial discrimination, is the main cause of disproportionately high unemployment rates among Blacks. Personally, I would agree with Mr. Thomas, if that is what he said, because I feel that this merely states the observable fact of the matter. Of course, neither Carl Rowan nor I are social

scientists engaged in research. He is a liberal political polemicist and I am a conservative political Congressional aide. But I suspect that if we were researchers in the social sciences we would bring our views to our work. Maybe all research should be accompanied by an ideological "admission" statement when it is published!

But we do need research and analysis in the areas I have indicated, conducted and presented as objectively as possible. Moreover, it is helpful to the Congress to have a range of interpretations of objective data and a wide range of policy options to consider. My observation based on twenty years of Congressional committee staff work is that our Members generally lack these essential elements of policy formulation, which seldom are produced by the committee hearing process, and that they do not make sufficient use of the analyses they do have. This may be changing because the Congress is developing a "state of the art" capability in information services. Yet Congress does not readily alter accustomed ways of doing its work, even when those clearly are inadequate.

The way in which research findings, analysis, and recommendations are presented is critical to their usefulness in the legislative process. People involved in research intended for Congressional use should be aware that their intended audience--Members and staff--are not academics and do not work in an academic environment. First of all, research must be timely. We need information in the six months before we begin drafting legislation, not the week after the committee having jurisdiction has reported a bill. We need it in easily digested form, with a succinct and forceful executive summary of major findings and recommendations right up front, minus professional jargon. Members and top staff people seldom have time to read lengthy reports. However, when they want to study the detailed documentation of specific findings it should be readily available without having to call a Federal agency.

In keeping with my own advice to be brief, I shall not elaborate on the five areas I have suggested as research needs from a national legislative perspective beyond a few comments on the first two.

During the years from 1950 to 1970, American education went through a traumatic period of enormous increases in school enrollments with a consequent shortage of facilities and teachers. This situation has now been reversed as the school-age population began to decline, and as communities squabble over school closures and teachers--now in vast over-supply--search for jobs. While population trends and resulting problems cannot be controlled, education by and large suffered from a failure to use available demographic studies and projections in planning, with a consequent waste of economic and human resources. The country cannot afford a repetition of such failures.

For example, we are about fifteen years into a period of one of the most dramatic changes in our labor force in modern history--the entry of women into the labor force on a massive scale, often with career aspirations identical to those of men. Intelligent planning of vocational and other education programs requires that we know as much as humanly possible about the

characteristics and needs of women seeking employment in order to be genuinely responsive to those needs. In writing the 1976 Amendments to the Vocational Education Act, we did not go much beyond consulting the professional women's movement which has a good deal more on its agenda than meeting the "real-world" needs of women in the labor market. As a result, we focused on "sex stereotyping" in instruction and counseling which was assumed to be the major cause of the failure of women to enter "non-traditional" occupations in larger numbers. While I do not discount the cumulative effect of sex stereotyping in limiting the aspirations of women, I suspect that there are far more immediate limitations--such as lack of information and outreach--which we virtually ignored. I hope that prior to another re-write of the 1963 Act we have the advantage of some first-rate, in-depth studies of the practical problems women encounter in taking advantage of educational and employment opportunities.

These kinds of demographic studies should be at the very top of the list of priorities for research planning for the 1980s. While our legislative needs are immediate, it is almost certain that the composition and characteristics of the labor force--including the participation of women--will continue to be volatile well into the next century, and, accordingly, there is the need for a continuing update of such research.

Demography is a major element in occupational demand and supply information, but studying the job market--and describing it in ways useful to both educators and job seekers--is vastly complicated both by its local character and by increasingly rapid and drastic change generated by new technology and transnational economic developments. We are less than a decade into a technological revolution with consequences as profound as those of the industrial revolution, but those consequences must be dealt with in a mere fraction of the time we had to cope with change wrought by the industrial revolution. I think that even our best students of this event only dimly perceive its scope and impact, but it certainly means that the American labor force is going to have to be trained and retrained in all sorts of new or different skills. This will require an education and training capability which is vastly better, and one with the flexibility to accommodate quickly to changed skill requirements.

It is not an act of friendship or support for vocational education to argue that our existing system--including its private components--is equal to this task. Congress has an urgent need to know how best to use limited Federal funds to stimulate the kind of change in our educational system which so obviously is required. Our problem at this point is that we have no clear idea even of what those changes should be, let alone how to encourage them. We do know that "business as usual" will not suffice.

These observations probably imply a more active Federal role in education and training than my fellow conservative Republicans find compatible with our ideology. Personally, I am more comfortable accommodating my ideological preferences to reality than attempting the reverse, but this is a Congressional disposition which has never been appreciated by the old or the new Right.

These are the needs for research planning as I see them from a national perspective focused on Federal legislation for vocational education. I would apply these also to so-called "employment and training" programs administered by the Department of Labor, whatever label we apply to them.

Undoubtedly a lot of other and different information is needed, if we are to do a good job defining national needs and shaping legislation accordingly, but I have attempted to identify only the most obvious and fundamental ones. Belaboring the obvious is one of the necessary skills of Congressional staff, perhaps because we so often find that when our bosses need information it is the obvious which is completely unavailable. I hope these observations make some contribution to filling any void of that sort in vocational education research.

A Framework for Vocational Education Research in the 1980s

George Wallrodt

Pervasive change will be the most likely descriptor of the condition of vocational education over the next decade. As we move into a high-technology industrial and service economy, the greatest challenge to vocational education will be to keep up with changing demands for relevant training and education.

Relevancy to the real world and applicability of acquired skills are the hallmarks of a good vocational education program. The same criteria, relevancy and applicability, must apply to vocational education research as well. The major consideration in formulating and planning vocational education research should be to help the enterprise prepare for the changes which we know are coming, and those which are already here--changing skills, changing occupations, changing teacher requirements and competencies, changing educational and work environments, and changing student characteristics. Ultimately, the major purpose should be the impact that research will have on students in the classroom (changing conditions may require us to redefine "classroom") and on the ability of students to apply their skills in a world of work where yesterday's advances may be outmoded tomorrow.

It should be "hands on" research, in the sense that the results can be picked up and applied by curriculum developers, program planners, administrators, and teachers in the classroom. It should be designed with the following question in mind: How will the outcome improve the product for the users--teachers, students, employers?

Quick dissemination is crucial. With technological change on a fast track, it is obvious that research which cannot be promptly applied faces the risk of being useless before it is published. Researchers face the challenge, in the selection and conduct of their studies, of producing results which can be applied in a reasonable amount of time, without compromising the quality of the product.

An important consideration in planning research is to understand and clearly define in operational terms what is meant by "high technology," by "vocational education," and by "vocational student." Vocational education is not a monolithic system. It varies greatly at different levels, under different conditions, in different types of programs, for different students with different levels of competency and experience. Some high-tech programs may be beyond the scope of vocational education; some may be appropriate at the postsecondary level, for students of certain levels of advancement, taught by teachers with special qualifications. Certain kinds of skills needed as

adequate preparation for more advanced training might be appropriate at the secondary level. These considerations must be kept in mind, particularly in evaluating vocational programs and their impact on completers.

We have seen a great many questionable evaluations in recent years which tended to view vocational education as a monolith, and, consequently, asked the wrong questions or applied the right questions to the wrong group. In defining terms, it is also important to relate them to reasonable expectations of vocational education. There is sometimes a tendency in the vocational education community to over-sell vocational education and claim for it benefits that cannot be demonstrated by objective evaluations. There should be a national longitudinal study specifically designed to measure differing outcomes of various levels of vocational programs.

It is important that research not be formulated in a vacuum. Others than researchers--the users of vocational education, for example--should be involved in determining the areas of research. The business and labor community, vocational education practitioners and students, and advisory council members should continue to be involved in the formulation of research studies.

Within this context, the following issues and questions are some of those which should be addressed in future vocational education research:

High Technology: Those who do it, know what it is. But how is it defined, for purposes of teaching, what are the needs of employers, and to what degree can they be met by the education system? What new skills are needed, and how are they best acquired by the student? How can present vocational education programs be turned into high-tech programs in appropriate fields? What kind of program modifications might be required; what new methodology might be helpful? Which existing vocational programs share common, fundamentals which can be adapted to high-tech skill training programs? Are guidance counselors equipped to deal with changing job needs and the skills required to meet them? Are the current skill levels of vocational teachers adequate? How can they best be enhanced?

"Flex" Skills: The fast-changing nature of jobs and the skills needed to qualify for them in an era of high technology will add a new dimension to the debate over the role of vocational education. Should vocational education move away from specific, narrow skill training to broader, flexible skills (e.g., attitudinal, decision-making and occupational) which are transferable? In one sense, new high-technology job skills may be even more specific than present skills, but the underlying fundamental knowledge required may make it easier for students to apply that knowledge to a number of specific skills. If this is true, what are the implications for vocational program planning? How might the concept of skill clusters be expanded? Are vocational students equipped to cope with change? What "coping" skills are needed for a person to be able to act flexibly? Can coping be made part of the program design, or is it a function of experience and character?

Science, Math, Communications Skills: Jobs of the future will demand a literate work force, and literacy of a broader scope than many of us possess today. In addition to reading and writing, students will need to be at least conversant with the nature of computer language and other forms of communication. They will require a knowledge of science and math which the average "well educated" American of today would find perplexing. How do we infuse science and math into the vocational curriculum? How can it best be applied so that it is readily comprehensible in relation to the job skills being taught? Conversely, can vocational education be used as a medium to make the teaching of science and math and their application more accessible to all students?

Relations with Other Programs: What mixes of program knowledge and skill content--basics, academics, vocational, employability--best achieve the desired outcomes? Is there value in reexamining the concepts of the Richmond Plan* of the 1960s, of integrating vocational and academic education through the organic curriculum? Research efforts should continue developing structural mechanisms to better coordinate vocational education, employment training, vocational rehabilitation, special education, and other related programs.

Equity Issues: Policy and programmatic research are needed to refine current operations and structures in order to better serve special populations. Solutions are required on a large array of problems. To wit: In what ways can vocational education be used to bring about improvement in attitudes, internal coping skills, motivation, cognition, including occupational skills, psycho-motor, and social development, of special needs individuals? What comprehensive vocational education models for serving special needs and "at risk" populations are available for a dissemination-diffusion process? Can career decision making, curriculum, and labor market conditions be so integrated that special populations have equal opportunity for employment without delimiting standards? The ultimate objective is to prepare people for employment and independent living commensurate with their ability and talent.

Motivation and Attitudes: Positive work attitudes and strong motivation are important skills in determining outcomes of vocational education. What affects motivation and attitude? What are the elements which inspire motivation in participants of vocational student organizations and other organizations, such as 70001 or Opportunities Industrtialization Centers of America. Are such students more successful, in school and on the job, than others? Are these students more adept at coping with change?

Cooperative Ventures: What types of innovative co-op ventures with business and labor, in addition to the traditional cooperative vocational education programs, hold promise for teaching new technology and employability skills? What kind of

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*Initiated at Ells High School, Riverside, California, the Plan was designed to incorporate in the vocational education program the development of written and oral communication skills to help graduates pursue more advanced education and training without having to take additional courses.

teaching and laboratory experiences, outside of the traditional classroom methods, hold promise? Will on-site simulation, entrepreneurial activity for students, new concepts of apprenticeships, bringing workers into the classroom, and other non-traditional approaches, enhance the basic program? Are there contributions which vocational education can make by working with enterprise zones and other types of community development program?

Standards of Excellence: In a period of rapid change, is it possible to identify the common elements of successful programming and develop standards of excellence which can be used as a prototype for individual programs? Hopefully, the development of such standards will be a by-product of future vocational education research.

Remarks on Vocational Education Research

Kenneth M. Smith

I have been asked to provide a national perspective on vocational education research. Having served previously as a member of the National Advisory Committee on Vocational Education (NACVE) and now as Chairman of the National Commission for Employment Policy and as the Commission's designated representative to NACVE, I do have some views on this topic.

The last extensive work done by the Commission on vocational education was compiled in a report entitled The Federal Role in Vocational Education, published in 1981. I should point out that this work was done under a previous Commission. Because of its short time in office, the Commission appointed by President Reagan has concentrated its attention on issues in the development of the new job training legislation and has not made any recommendations directly addressed to vocational education or to research on this topic.

It is no secret to this group that the previous Commission report was rather critical of the performance of vocational education both as to it general effectiveness and as to its treatment of women and the disadvantaged. Nevertheless, the recommendations affirmed a Federal role in vocational education and stressed the need for program improvement and more equitable treatment of women and minorities. The present Commission will be taking a fresh and unbiased look at vocational education--we have already begun that process by responding to a request from Assistant Secretary Worthington by setting aside a part of our meeting on April 30, 1982, for presentations on vocational education--but I do agree that some of the criticism of the previous Commission's report needs to be addressed, if we are to achieve the goal of an effective vocational education system.

In many places, vocational education provides effective programs, well-taught and well-tuned to the employment needs of the community. In other places, the programs are much less effective. In these places, if vocational education did a better job, fewer people would be falling through the system and needing CETA as a safety net. Vocational education must show it can be effective and help the disadvantaged as well as the non-disadvantaged, if it is to maintain Federal support.

Concerning what, if any, research is needed in vocational education, there is always a need for good research that can inform policy. Too often, the best research from an academic viewpoint has almost no effect on policy because it is written in an incomprehensible style, because it is too late, or because the authors have no sense of political reality. The new Commission is certainly stressing practical relevance as we plan new

projects.

In its report on vocational education, the previous Commission did not try to investigate all aspects of vocational education, such as why individuals might choose vocational courses or why local communities might want to support vocational education. Instead, as the title indicates, the report focused on the Federal interest. It found that from both a theoretical perspective and from the language of the legislation that Vocational Education Act funds are intended to be used to increase the labor market success--particularly the long-term earnings--of students. Research sponsored by the Commission addressed three topics:

(a) labor market outcomes of taking vocational courses;

(b) the experience with specific skill training and forecasting of job openings; and

(c) coordination of vocational education with other Federal programs.

Regarding topics for future research, I will describe briefly three topics that I think have received insufficient attention and that bear on the Federal role in vocational education. These topics are: basic skills, postsecondary outcomes for postsecondary vocational students, and the financing of vocational education. I leave it to the technical experts to determine whether there are sufficient data to generate meaningful results on these topics. I do not know whether you can come up with answers, but I am pretty sure they are important and unanswered questions.

Basic Skills

A common complaint of employers is that many of their applicants lack basic reading, writing, and computational skills. The validity of this complaint is at least partly borne out by the National Assessments of Educational Progress, which shows declining test scores among the nation's youth, particularly in mathematics. We need to know more about the effectiveness of vocational education in teaching basic skills. There are at least two competing effects of vocational education. Taking vocational courses could have a negative effect on academic achievement, because students take fewer academic courses, or it could have a positive effect because certain students can learn more effectively when they are being taught in practical courses. At a simple level, there may be some kids who can learn to read an auto repair manual who cannot learn directly how to read Shakespeare. We really do not know much about the relative importance of these effects. This kind of information could help us determine whether Federal funds should try to:

(a) get more students to take some vocational education;

(b) get some students to take more vocational education; or

(c) improve the quality of vocational offerings.

Postsecondary Vocational Education

Most studies of the effects of secondary vocational education look at outcomes for students who do not go on for postsecondary schooling. This is partly because secondary vocational programs have been viewed as terminal, or planned for students who intend to enter directly into the labor market or family life. Nevertheless, half of the high school students in the vocational curriculum have been found to pursue full-time postsecondary schooling within four years of high school graduation.

Evaluations of postsecondary training that focus on increased earnings have generally been more positive than evaluations of secondary vocational education. A good, national study of postsecondary training would be worthwhile, and could help shed light on such questions as:

(a) What is the appropriate relationship between secondary and postsecondary vocational education?

(b) What occupations can be adequately trained for at the secondary level and what occupations require postsecondary training?

(c) Should Federal funding of postsecondary education primarily occur through vouchers to students or through institutional support?

Public Finance Issues

A third area in which research might be helpful is "who should pay" for vocational education. This would require a clearer delineation of the local, state, and Federal roles in vocational education. In 1973-74, Federal dollars were about $5 billion or 8.5 percent of the revenue of public elementary and secondary schools. The state contribution was $24 billion or 41.4 percent, and the local contribution was $29 billion or 50.1 percent. In 1978-79, for the first time, state revenues for the public schools slightly exceeded those provided by local sources, and the Federal contribution had increased to 9.8 percent.

Revenue Receipts of Public Elementary and Secondary Schools from Federal, State, and Local Sources 1973-74 and 1978-79

(in millions)

School Year	Federal	State	Local
		Amount	
1973-74	$4,930	$24,113	$29,187
1978-79	8,600	40,132	39,262
		Percentage Distribution	
1973-74	8.5	41.4	50.1
1978-79	9.8	45.6	44.6

Source: Adapted from Table 2.7, p. 56, National Center for Education Statistics, The Condition of Education, 1982 Edition.

The experience with Federal funding of vocational education contrasts sharply with that for the public schools generally. Most of the growth in vocational education funding during the last 10 years has come from state and local governments. State and local expenditures more than doubled from almost $2.6 billion in 1973 to about $6 billion in 1979, while Federal expenditures under the Vocational Education Act did not even keep up with inflation, rising from about $480 million in 1973 to $657 million in 1979.

The policy issue here, of course, is whether funding of vocational education should be left almost entirely to state and local governments or whether there is a Federal government responsibility.

There are just three topics--basic skills, postsecondary evaluation, and financing--where I see room for some good research. I would emphasize again the importance of relevance to policy. Research funds for this kind of work are shrinking so there will be less opportunity for multiple studies on the same topic. At the same time, we sure need to know how to spend Federal dollars on vocational education more effectively.

PART III

State and Local Perspectives on Research Programming

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Vocational Education Program Improvement for the 1980s

Joe D. Mills

As a State Director for Vocational Education, I am concerned that vocational education exhibit a philosophy which is supportive of a logical, systematic approach to problem solving. We need to subscribe to a comprehensive approach to improving our vocational programs at every level. Program improvement needs to be looked at in terms of a total activity or process--not just in terms of its component parts, such as those spelled out in past legislation.

Need to Base Efforts on a Total, Comprehensive Plan for Program Improvemnt

In my opinion, the 1963 and 1968 legislation was effective in bringing about an entity in state departments whose function it was to foster applied research activities. The formation of Research Coordinating Units (RCUs) called our attention to the need for benefits derived from research, exemplary, and curriculum development activities. The commitment of resources over an extended period of time gave the necessary visibility to the research process and to an even greater need for a more comprehensive approach to program improvement.

Today, many of our states have become very efficient and effective in the development of products designed to meet the needs of vocational students, educators, and administrators at all levels of education. However, product development is not and should not be an end in itself. We must be certain that the product is based on a real need, is an appropriate solution to that need, has a clearly defined target population, has a well developed plan for its dissemination, is assigned the necessary resources to ensure that the user receives the required inservice training, and that the total process from need identification through product utilization is evaluated. The formation of an RCU was a necessary evolutionary step to bring us to our present state of development. Now we find a need for a broader commitment and greater flexibility in order to strengthen programs within our states. The retention of the RCU per se is not or should not be the issue. The issue is one of developing a total program improvement plan: a plan that addresses the needs of students in a unified effort; one that stretches from Washington, through The National Center for Research in Vocational Education, through regional state and local administrations, to the students in our classrooms.

Need Fewer, Clearly Define Federal Priorities which Reflect State and Local Needs

Presently, we are attempting to address state and local needs and at the same time we must expend valuable resources addressing national priorities. Frequently, state and local needs are determined through well constructed needs assessment instruments with data collected from very large populations. Often expressed as problem statements, the needs are further subjected to rank ordering.

On the other hand, Federal priorities, while they may be equally important, appear as single word entries with or without a modifier. For example this year's (1982) list contained five new priority areas for projects of national significance. They are: (1) economic development, (2) defense preparedness, (3) private sector, (4) entrepreneurship, and (5) high technology. These are to be added to the prior year's priorities list which focused on: (1) reducing youth employment, (2) promoting equity, (3) improving productivity training, and (4) increasing energy employment opportunities. Along with these, of course, we must attend to the research, exemplary, curriculum and guidance priorities which are outlined in Federal legislation and include: (1) sex bias and stereotyping, (2) economically disadvantaged, (3) rural areas, (4) limited-English speaking, (5) education and training linkages, (6) youth, (7) new and changing occupations, (8) special needs, (9) women, and (10) youth offenders.

I find two major problems with such a list of priorities. First, it is far too broad a list of social ills to be addressed by such a limited resource base. Second, each priority is only a concept and as such offers little assistance in problem identification. Thus, only a surface examination is possible and truly workable solutions to the problems/priorities are rarely produced.

For example, productivity is one of the newer areas of concern. States need assistance in the identification of the problem or problems associated with such a national priority. Certainly the farmers of the midwest have a margin of profit concern associated with their wheat crop; but is this a productivity problem? I rather doubt it is, since the American farmer's productivity in that region has gone from one bushel produced for two hours of toil to one bushel produced for every 30 seconds in the field, and this has occurred in little more than one generation of farmers. What is the problem associated with productivity that vocational education is to address? Is worker productivity the ill facing our automobile industry today?

When sex bias and stereotyping became a priority area and the country became concern with non-traditional employment, non-traditional enrollment in vocationl education programs became an issue. In Florida, as in many other states, a full time "Equity Coordinator" was hired and tens of thousands of state and Federal dollars were spent each year in an attempt to change enrollment patterns.

Little progress has been made and those dollars could have been more wisely spent if the real problems associated with non-traditional enrollment had been identified when the priority was introduced. For example, it does little good to change teacher and administrator attitudes regarding program enrollments and to revise curriculum, if family and peer pressures discourage students from entering non-traditional programs.

Need a Functional Communication/Information System to Support Program Improvement in States

Under shrinking resources our states have a pressing need to identify alternative solutions to their problems; alternatives that have the greatest potential for success. Not only must they be aware of possible alternatives but they must also have pertinent information about each. Has the alternative solution already been developed by other states or territories? Is it transportable? If transportable, under what conditions, and what are the costs and benefits? Has another state selected the alternative and are they in a developmental or implementation mode?

I believe it is clear to anyone attempting to address national priorities and local needs that state educators are attempting to resolve common issues, if not common problems. To prevent duplicating efforts and wasting resources, it is imperative that state agencies have a communication/information system that can and will provide up-to-date information. We must know what problems are being addressed, who is attempting to solve each problem, what solutions are being attempted and what successes have been achieved. Part of the necessary structure for a national/state communication/information system is in place. Two examples are The National Center for Research in Vocational Education and the National Network for Curriculum Coordination in Vocational and Technical Education. Message switching between states has become a reality and more current data bases are being developed.

Although these systems (The National Center and the Curriculum Centers) have been under development for a number of years, their roles are still evolving and are far from complete. This is due, in part, to a lack of central purpose or focus at the national level, both within the legislation and within our professional organizations. The existing centers have primarily been responding to immediate or short-range needs. Since the central focus remains undeveloped and primary problems remain ill-defined, the ability of a system to respond to critical problems is hindered. Improved coordination and communication should result in more relevant technical assistance and better use of products designed for vocational education classrooms.

Need an Expanded and Redirected Technical Assistance Role to Assure a Technical Assistance Delivery System Capable of Reaching Down into the States and Localities

A primary function of a national research center should be to support program improvement efforts within and among states, just as states are charged with providing service to local education agencies. For example, supportive activities might include problem clarification and identification. These constitute a time-consuming and costly activity for states, but are essential for quality research. Another supportive activity would be providing an in-depth review of literature for any given problem area. This would prevent duplication of effort that is now occurring among the 57 states and territories. In addition, a more scholarly review would likely be produced which may also lead to further clarification of the problem/priority area.

If states could depend on the above kinds of supportive activities along with actual technical assistance, their ability to respond to problems/priorities would be greatly enhanced. Although the existing system, in theory, provides technical assistance to states, there is still a largely unmet need in this area. If the technical assistance role could be given a higher priority, expanded, and "re-directed" toward meeting the specific needs of states, then greater progress toward comprehensive program improvement could be realized.

Need to Retain but Redefine Program Improvement in Federal Legislation

I endorse increased emphasis on program improvement and support it as a key purpose of Federal, state, and local policy, provided such policy is not restricted to specific portions of the educational delivery system (such as Research, Exemplary, or Curriculum Development). Program improvement implies change and we should not and cannot expect to improve vocational programs without considering possible changes in any and all facets of the total educational delivery system. If a chain had a number of weak or damaged links, you would not expect to improve its total strength by only repairing (changing) some of the weak links.

The same is true with a total vocational education delivery system. It is of little value to produce improved instructional materials, if their ultimate use in the classroom is dependent on a dissemination system that cannot deliver the product, if its use is dependent upon an inservice training program delivered by untrained educators.

While each state, school district and local education institution has a delivery system with varying strengths and weaknesses, they have common program improvement needs. Among these is the need for resources to address problems, the need for flexibility to apply those resources in a manner best suited to their own set of unique circumstances, and the need for technical

assistance. Program improvement should be a broad concept that encompasses all of vocational education.

At present, this term in P.L. 94-482 is not clearly defined. The law emphasizes the addition of new programs rather than changes in current programs. To further support this position, I endorse the joint position on program improvement taken by the National Network for Curriculum Coordination in Vocational and Technical Education (NNCCVTE), the National RCU Association, and the American Vocational Education Personnel Development Association (AVEPDA). They urge that "the overall Federal focus should be on improving the quality of existing and emerging vocational education programs, and the vocational education infrastructure which provides these programs." (See the position paper, "An Approach to Program Improvement," issued July 1982.)

In closing, I would say that it is essential for all of the components of the vocational education enterprise--the American Vocational Association, the Office of Vocational and Adult Education, the National Curriculum Network, The National Center for Research in Vocational Education, and others--as well as state and local agencies, to direct their efforts toward finding solutions to our common problems.

State and Local Perspectives on Research Programming for the 1980s

Pascal D. Forgione, Jr.

This paper* is divided into four sections. I first establish a context for my discussion by defining the Council of Chief State School Officers' (CCSSO) position concerning a Federal involvement in the conduct of educational research. Next, I describe the sources upon which this paper's analysis of vocational education research priorities has been based. In the third section I present a synthesis of specific issues and concerns that reflect the states' perspective on recommended lines of inquiry related to vocational education research priorities for the 1980s. In the final section I offer a personal account of what it is presently like to try to work in the area of vocational education assessment which is emerging in Connecticut as a priority area related to productivity and excellence.

Appropriate and Necessary Federal Role in Educational Research

CCSSO is on record as supporting a Federal investment in educational R & D. The Federal government, especially through agencies such as the National Institute of Education (NIE), is uniquely capable of making its important contribution to the improvement of education and educational opportunities in the states throughout the nation. Information and its analysis are critically important to state and local educators if we are to improve school programs. And, while research is and should be conducted at the local level, the Federal government is alone in its ability to conduct and disseminate broad-based, long-term, and comparative research on a national level--research which is well beyond the resources and perspectives of any one state.

The dollars spent at the Federal level are both a good and appropriate investment for the national government to make on behalf of public education. Their effect is multiplied at the state and local levels, and they offer opportunities to acquire information that might not otherwise be gathered. Furthermore, investment in research is one way that the Federal government can contribute to educational improvement and greater cost effectiveness without running the risk of establishing a national curriculum. And, as issues emerge as a consequence of concerted

*The author was prevented by illness from presenting this paper at the Colloquium.

state action, then the Federal government has a responsibility to support research in such policy areas.

In the past, issues such as school finance equalization, school desegregation, and student proficiency raised significant policy questions at the state and local level--questions that were not easily or quickly resolved. In each of these areas, the NIE offered a course of information--critical to state and local decision makers--not only about the various alternative methods of dealing with a given issue, but about the relative merits of each. A critical policy area to the economic growth and productivity of our nation and one that is on the agenda of state and local education agencies in the coming decade is vocational education. We look to the Institute to provide us information and technology to meet the challenges and needs before us.

CCSSO's Research Agenda for the 1980s

In 1981, the Committee on Coordinating Educational Information and Research (CEIR) of the CCSSO, under the leadership of Chairman, Mark R. Shedd, Connecticut Commissioner of Education, set about the task of identifying an agenda for research, through an examination of current trends and educational issues, that would help educational leaders meet the needs of students and society in the coming decade. The resulting proposed research agenda does not profess to be definitive or complete; the potential questions are endless. CEIR/CCSSO does believe, however, that we will benefit most from a structured pursuit of greater understanding of the educational process.

A report, titled "Research Agenda for the 1980s," describes CEIR's perceptions of the major questions needing research during the next decade. It is hoped that the general parameters for research itself may productively guide the declining resources available for research into those areas that practitioners feel need the greatest attention.

The CCSSO is presently in the process of updating the research agenda in the area of vocational education through the work of the Committee on Education, Training and Employment. Under the chairmanship of the Pennsylvania Secretary of Education, Robert G. Scanlon, a questionnaire, in process of final development, is being designed to obtain information concerning fifteen policy issues related to ten major vocational education areas from State Education Agencies (SEAs) throughout the country. This survey will provide baseline data on where SEAs are in each of the identified vocational education policy

*I wish to acknowledge the thoughtful assistance of two department colleagues: Dr. Joan Baron, Assessment Project Director, Assessment Testing and Evaluation Unit, Bureau of Research, Plannning and Evaluation, and Dr. Fred Haddad, Coordinator for Research and Curriculum Development, Division of Vocational Technical Schools.

areas and issues, which should be a most valuable resource to Federal planners and policy makers in their deliberations regarding the establishment of Federal vocational education research priorities that can encourage, through a concerted research program, state and local attention to identified areas of need. That is, the use of research as a catalyst for change and improvement in terms of "where we are" versus "where we want to be."

Recommendations for potential areas of research and inquiry on vocational education presented in this paper have been gleaned primarily from these two Council documents. In addition, I have also drawn upon Connecticut's recent experiences in exploring the feasibility of conducting a vocational education assessment and discussions with vocational colleagues representing state and local perspectives.

Suggested Lines of Inquiry: The State's Perspective

In this section I relate the broad research issues and priorities that were developed by the Chiefs and make them specific to the vocational education area. I also offer suggestions on how the special needs of vocational education fit into the general framework that the Chiefs have supported. It is hoped that this guide will productively direct the declining Federal resources available for vocational education research into those areas that practitioners feel require the greatest attention.

An Overview. The CCSSO Research Agenda highlights two of the primary goals for education, namely, Education Equity and the Search for Excellence, and two of the major contextual factors, namely, Enrollment and Population Dynamics and Managing Schools During a Period of Extended Inflation and Fiscal Constraint. That is, "what are we trying to accomplish"--the aspirations for education--and "what does the real world look like?"--the constraints under which education operates. This paper suggests a research agenda for vocational education related to each of the goals and each of the contextual elements.

Education Equity. Two lines of research are proposed under this topic. First, all students should have equal access to quality vocational education programs whether they live in urban, suburban or rural settings. The questions to be looked into are:

1. Are vocational education resources being equitably allocated among schools within a district, among districts within a state and among states of the Nation?

2. Are vocational education funds allocated on the bases of relative numbers of students at the secondary, postsecondary, and adult levels in need of training or retraining?

A second major agenda item is equality of opportunity as it relates to vocational education school programs. The Council's documents are supportive of the type of special attention provided in Public Law 94-482 in assuring the availability and suitability of vocational education to special needs target populations. The line of inquiry is:

3. Is vocational education training that results in the acquisition of at least one employable skill available to: all handicapped students capable of benefitting from such training; all non-college bound, non-handicapped students; and all college-bound, non-handicapped students?

The Research Agenda places the equity issue in an appropriate framework when it states:

> The 1980s will be a period of investigation of the practice--rather than the theory--of equity. This research in turn will form the foundation for analysis and policy on equity--the posing and answering of questions with which we can hope to shape the true equal educational opportunity in our public schools.

The Search for Excellence. A major indicator of the quality of schooling in the 1980s, in the view of the Chiefs, will be increased productivity (Agenda, pp. 7 and 9 and Survey: II, #2 and X, #14). The challenge will be to redefine and clarify the mission of vocational education in terms of the renewed public interest in productivity and the outcomes of vocational education training. The questions that should be investigated are:

4. What is a clear and coherent definition of productivity vis-a-vis vocational education schools in the 1980s? What will it mean to be a productive vocational education program? A productive vocational education student?

5. What better criteria (other than "placement" rates) are available for evaluating the effectiveness of vocational education programs? How can such information be collected, analyzed and profiled for reporting on the "true condition of public school vocational education programs" at the local, state and national levels? (The final section of this paper deals with emerging vocational education evaluation and assessment issues.)

Future vocational education research should also carefully examine the relationships between excellence/productivity and curriculum, namely, what we teach, how it is taught, and the training, roles, competencies, and compensations of teachers. The priority research topics related to excellence/curriculum are:

6. Should vocational education be concerned with specific skill or cluster oriented instruction? Should the purpose of vocational education programs be to teach specific entry level job skills or general employability skills?

7. Can vocational education programs upgrade the quality of their curriculum by encouraging the basing of programs upon up-to-date occupational analyses and clearly stated performance objectives? What are successful strategies for replacing antiquated training programs with programs geared toward high need occupational areas, especially in terms of labor market projections and the rapid technological growth?

A final issue, employability, draws together elements of both the equity and excellence/productivity themes, and on this subject the key question is:

8. How can vocational education training and services be uniquely designed to increase the employability of potential high school dropouts and other potentially unemployable high school students?

Changing Demographic Picture. The second section of the Chiefs' "Research Agenda for the 1980s" focuses on the attainment of educational goals in a changing world. The first of two factors that need to be explored is the impact of today's dynamic context, notably the enrollment and population projections, on the reformulation of the goals of schools, the public schools' ability to offer quality programs in the 1980s, and the education of a productive work force. The 1980 Census has revealed startling findings regarding migration patterns that must be carefully monitored and verified, and that have potentially dramatic implications for vocational training. For the first time in our nation's history more than half of the individuals in the work force were employed in a state other than that in which they were born! Such statistics suggest several important lines of Federal research activity on such questions as the following:

9. How can vocational education planners at the local, state, and national levels better assess the impact of their programs in meeting their respective manpower needs?

10. If significant patterns in the migration of workers are identified through an analysis of existing census data, how can vocational education planners and employers determine whether or not there are major differences between the occupational skill needs of comparable groups of workers in various geographic areas of the country? In light of the major vocational education occupational programs across the country, how common are the skills provided? Which are generic and transferable?

11. How can the Federal government stimulate the investment of vocational education at the local, state, and Federal levels in economic development . . . through job training to increase the pool of workers within the labor force to meet projected labor market needs, work force training programs for the revitalization or expansion of existing businesses and industries essential for the well-being of a state or region, or start-up job training programs for key businesses and industries new to a state or region?

The dramatic demographic changes of the last 20 years have tremendous implications for vocational education curriculum. Today's curriculum must be thoroughly reviewed in light of the many new social and technological realities. One important example is the needs of adult and retraining education. The impact of the baby boom on the economy, coupled with the significant increase in the number of women entering the work force, created an important new role for public schools. Not only had the need for effective vocational education and career counseling increased, but a new world of adult vocational education and re-training has opened up. Questions to which answers are needed are:

12. What level(s) of vocational education programs should be developed in the 1980s? Should the Federal investment in vocational education be directed primarily at the pre-college, postsecondary two- or four-year college, or adult levels?

Fiscal Environment. The realities of the 1980s indicate a scarcity in fiscal resources to support public education generally. Given this constraint, the Federal investment in vocational education should be directed to two critical areas that will be of highest priority to the states. One is vocational education program development. Efforts serving this purpose should be the catalyst to direct the enterprise in a manner that is most responsive to high technological changes. The significant questions are:

13. How can the Federal government encourage the development and redesign of vocational training programs in newly emerging, rapidly changing, or high demand occupational fields?

14. How can the Federal government encourage the replacement of obsolete equipment or acquisition of new equipment for vocational education programs?

The second key area has to do with the availability of a high quality teaching staff for vocational education programs, for which the research questions are:

15. What are the projected supply and demand figures related to vocational education teachers, especially in newly emerging or high demand occupational fields?

16. Can vocational schools best improve the quality of vocational education teaching groups . . . by the retraining of staff in new technology areas and/or for areas where there is a shortage of qualified teachers; by inservice education programs, active recruitment and selection of highly capable students into teacher education programs, active recruitment of private sector employees into the vocational education teaching field, or by enhancing a cooperative mode between business and industry and education to improve the skills of vocational education teachers?

An Emerging Evaluation Context. The next area that I offer for consideration is vocational education evaluation and assessment. To understand the needs in this area, however, one must recognize three factors that I have come to appreciate from personal experiences this past year: (1) there is an emerging interest and concern over program outcomes or effects; (2) there should be a focus on the efficacy of school-based variables that enhance learning; and (3) there is a need for an emphasis on the establishment of expectation levels for student performance that are sufficiently challenging.

Product Evaluations. In the 1970s, the emphases of state and Federal evaluation efforts were concentrated on monitoring the implementation of programs. A wave of Federal legislation, such as compensatory education, special education, and vocational education, placed a primary focus on requiring field assessments that addressed input and process concerns. For example, was there a PPT in place? Did the program have stated goals and objectives? Did the proper ratios of staff and equipment to students exist in a given program area? However, now I am witnessing a startling maturation where program staff across all types of programs--i.e., bilingual, special, and vocational--are beginning to ask the basic evaluation question: Is my program accomplishing or succeeding in providing its intended benefits?

I see this as a general trend across education. Perhaps it is a result of the fact that the programs that we worked so hard to put into place in the 1970s have now matured. Nonetheless, there is an increasing interest in looking at the outcomes of programs. This is certainly the next logical evaluation question after the process and implementation dimensions: to find out "Are things working?" This trend is suggested by words like productivity and excellence. People want to measure the effects of their programs--they want to know what works. Thus, I see evaluation and assessment as key and critical priority areas for attention by state and Federal vocational policy makers in the 1980s.

Effective Schools. As research priorities are being formulated in the area of vocational education evaluation and assessment, the orientation should be to inform educators as to "what works"--a focus on school-based variables--as contrasted with so much of the federally-funded social science research of the 1970s which concentrated on factors outside of the school. Recent research conducted by Edmonds, Bloom, et al. has informed us that children learn better in schools with a clear mission, with stated goals and objectives, and that you need to monitor students progressively through the program. These (among a set of school characteristics) make for more effective learning. Thus, I believe we do know enough about what works, and what we now need to do is to translate this knowledge base into our vocational education program development and administration efforts.

Toward this end, I am recommending that a fruitful area of vocational education R & D would be the development of clear statements of competency based vocational education with accompanying objective-referenced tests. This necessitates a specific understanding of the competencies that the program is designed to teach, a curriculum and set of instructional strategies to teach it, and a set of instruments to measure the effectiveness of the competencies. Federal research funds should be made available to stimulate the design and development of vocational education instructional systems, i.e., the task analyses, the matching curriculum, the instructional strategies, and the measurement instrument. The classroom teacher needs to know what she or he is trying to achieve, what materials and tools would be most useful in teaching a particular content, what instructional strategies are most appropriate in communicating this content, and how the effectiveness of the teaching and learning can be accomplished. I am also strongly recommending that lines of inquiry be formulated that would extend the findings of the Effective Schools research, regarding the strong and positive relationship between achievement and a set of specified school characteristics, to vocational education.

Standards of Performance. The next point follows from the earlier discussion of productivity and excellence. I am finding that vocational educators are beginning to ask whether the performance levels of their students are sufficient, i.e., are students capable of the tasks required of them--do they know enough to be productive, to be employed? This brings us into the arena of standard setting, i.e., how much is enough to be considered sufficient?

There are several ways of approaching this question. First, we could look at the issue normatively. Is our state average performance on a set of skills above the national level of performance? "Good enough" is then equated with average performance on some normative scale, such as the National Assessment of Educational Progress (NAEP) item bank. However, we cannot try this in vocational education because such norms do not presently exist. A second approach could be to investigate the performance level of individuals in the work force who are performing satisfactorily on the job. I am especially encouraged by the "known groups" validation approach being used by The American Institute of Research (AIR) in its development of a set of vocational education instruments under a Federal contract. For each of some sixteen occupations AIR has selected a validation sample of individuals employed in an area for up to two years. This will provide target performance expectations or standards for vocational education training programs. How close to these can we get the performance levels of school students without on the job experience? This is a very exciting new direction, and one that seems to merit further Federal support.

A third area of future research involves a non-normative alternative: the use of standard setting procedures/techniques. This requires the aggregation of the judgments of various constitutencies--teachers, business, labor, informed publics, etc.--in the construction of assessment instruments to establish performance expectations. Several procedures have been developed and used extensively in the basic skills testing areas (namely, by Angoff, Nedelsky, Ebel, Jaeger). I am recommending that a

research study(s) be initiated that would explore the applications and effectiveness of these standard setting methods with respect to the areas of vocational education.

Connecticut Case Study. During the past year, the vocational and the assessment staff of the Connecticut State Department of Education have cooperated in the conduct of a feasibility study to determine if and how a statewide assessment of vocational education could be administered. As we proceeded to respond to a perceived need of the vocational education community to measure outcomes, we learned that one has to ask a lot of questions to which cut and dry answers are generally not available. A number of questions did emerge for which we found little guidance in the research literature. These include:

> Is it possible to measure LEA and Regional Vocational Technical Schools using the same test?
>
> At what level do we test? Entry? Exit? Interim? What are the implications of a non-standard curriculum for this selection process?
>
> What test is best suited . . . . pencil and paper versus performance, both?
>
> What are the advantages and disadvantages of each?

We, in Connecticut, still do not have all the answers. Certainly in an era with increased interest in evaluating outcomes of vocational education programs, research is needed to help respond to these and other important questions. It is my recommendation that a well conceived and executed Federal research initiative in the area of vocational education assessment could raise the issues and stimulate scholars and practitioners to formulate research related to answering these and other important questions. A priority activity would be the establishment of a National Item Bank for high demand vocational education occupational areas. One approach that might be helpful to states would involve fostering the development of sets of clearly defined vocational education skills for an occupational area with accompanying questions and items for which normative performance data, such as NAEP or AIR, are available. Such test banks would accommodate the diverse needs of states in curriculum development and assure cost efficiency in test construction. States badly need direction and resources in order to improve the state of the art of vocational education assessment throughout the nation.

From my personal experience I know that vocational educators desire to evaluate program outcomes and are asking the right questions, such as "Are my students performing satisfactorily?" However, the appropriate technology is not yet there to assist in answering these questions. I recommend that the Federal government launch a research program in concert with SEAs and LEAs that will guarantee the needed long-term continuity for such a test development initiative that will match the emerging interests and needs of state and local vocational educators.

A Research and Development Agenda for the 1980s: Productivity, Economic Advancement, and Human Resource Development

Ronald D. McCage

For the first time since the great depression, we are nearing double digit unemployment, 9.8 percent in July 1982, and our government continues to initiate efforts aimed at creating jobs designed to eradicate the unemployment problem. But it can be argued that we do not have an unemployment problem. We have a mismatch of people with skills for the jobs available. In other words, there is almost a balance between jobs available and persons unemployed. Obviously, much of this mismatch has been brought about because technology has progressed much more rapidly than our institutional capability for educating persons to work in an advanced technological world.

Many states have set about to implement various economic development programs, and some of these efforts have been successful. But the majority have been ineffective because they offer quick-fix rather than long-range solutions to problems of maintaining a near balance between jobs and qualified persons to fill the jobs. These ineffective approaches are marked by short-term goals which lead to a design which provide for identifying firms to locate or expand in a state, finding training institutions willing to meet industrial start-up needs, establishing working relationship between the two partners, and meeting, generally successfully, the immediate goal of producing a trained work force. But what happens next? Does the cooperation continue? Is it based on any type of long-range policy or goal? We must look beyond the quick-fix mentality and concentrate on the long-term systematic development of human and material resources.

Countries such as Japan and Germany have become competitive in international markets because they tend to rely on an educated and trained work force that has some involvement in the day to day management of the work environment. These countries have established policies for human resource development that are based on the long-term economic goals of the country. These countries believe that the ability to read, communicate, and achieve scientific and technological literacy is as essential to success and survival in the market place as the training of someone to operate a specific piece of equipment. They believe that for persons to perform psychomotor skills successfully they must be able to understand fully what is taking place with the technology or processes involved. In today's computer and electronics driven world of high technology, no country can afford to ignore this view.

Therefore, the first order of business for the 1980s is for the United States to devise a national policy for economic development that maximizes the development of our human resource potential. Such a policy must incorporate the capabilities of all major educational and training delivery systems, from kindergarten through the university, including those in the private sector. It must assure direct involvement and linkages with business and industry and must be based on the general philosophy of vocational education, which professes that a complete worker is one who has mastered the basic education and communication skills along with mastery of occupational skills. The policy must provide for career ladders and for the continuous preparation and training necessary to climb to the next rung on the ladder, or to make lateral transfers within the world of work. Our country can no longer settle for just meeting the needs of today, and such a Federal policy must, therefore, seek to achieve its central purpose, which is to develop the nation's primary resource, its people. When this occurs we will once again become the most productive and competitive technological nation in the world. Simultaneously, state and local governing bodies must develop complementary policies and programs.

Before a vocational education research and development agenda for the 1980s can be formulated and implemented, we should have in place a national policy on economic and human resource development. In its absence, we are forced to shape such an agenda in the light of demographic trends, developments in technology, governmental policies, prior research findings, and the opinion of recognized respected experts. Today, we live in a world characterized by high unemployment, dissatisfaction with centralized government, and an industrial and business community being turned upside down by space age electronics, communications advances, and new dimensions of automation.

Key Factors

The following factors more clearly reflect the current demographic situation and long-range trends with implications for research and development in the 1980s:

1. The United States has a projected skilled worker shortage of at least fifteen years. We have a current unemployment rate of almost 10 percent and assurance that it will rise. Half of our workers who are classified as journeymen are over fifty years of age. The machine tool area which is critical to national defense is in serious trouble, and we have a projected shortage of from 300,000 to 600,000 in the secretarial occupations alone.

2. Women constitute approximately 50 percent of our labor force and may account for as high as 60 percent in the future.

3. We have a serious youth worker unemployment problem. Fifty percent of our Black males and Spanish-speaking

populations are unemployed. We have reached our peak in the baby boom, and by 1990 youth will become one of our most precious commodities. This will set up fierce and intense competitive situations between higher education institutions, defense institutions, and the market place at all traditional exit points of our education system.

4. An increased budget for defense will seek to produce new weapon systems for which an adequate industrial base does not exist. Nor do we have the types of trained or trainable soldiers to service and operate the higher sophisticated systems that are being planned and produced.

5. In terms of Federal policy, we in vocational education are faced with a reduced level of Federal support, the possibility of block grants, the shift of emphasis from the secondary to the postsecondary level, the shift from a dependence on the public sector to a dependence on the private sector, and a potential downgrading of the Federal involvement in the abolition of the Department of Education.

6. Finally, current trends tell us that the situation will probably get worse before it gets better. The shifts in our age groups, the continuous relocation of industry from the snowbelt to the sunbelt, from urban to suburban to rural, and the impact of technology on our daily lives show no signs of letting up.

Why spend this much time on national and international problems, when my assignment was to deal with a research agenda from a state level perspective? Because, I do not see how we can separate the problems of the Federal, state, and local levels when we live in an international economic community. Many of our problems are the same at all levels, and the main differences lie in the research and development roles each level should play in addressing and solving those problems. Those of us in vocational education research and development need to spend a considerable amount of effort in sorting out and determining what the Federal, state, and local roles should be in the area of research, development, and personnel training.

We can no longer afford to be redundant in and among levels, and we must learn not to jump automatically on every bandwagon that arrives on the scene. When things such as career education, environmental, energy, and solar energy programs, economic development and productivity problems, etc. appear on the horizon, we must learn to ask "What is our role and function in this arena?" We must avoid acting as we have in the past--being caught-up in fads and only later asking ourselves "Why is everybody doing the same thing? Why didn't we work together to solve the problem?"

We must see to it that we have an adequate level of funding each year for national, state, and local level activities in applied research and personnel development. The total funding for national level research and personnel development should be at least 10 percent of the total appropriated for vocational and technical education. These funds should be used to support a National Center for Research in Vocational Education; a national network for data collection capable of meeting Congressional, Federal, and state level reporting needs; a national network for the collection and dissemination of curriculum materials; and a small, but efficient, number of quality institutions designed to conduct specialized research and personnel development in high priority areas of national interest.

To facilitate national level research, the "contracts only mentality" should be eliminated and should be replaced by a priority driven system that depends on a balance of long-term grants, cooperative agreements, and contracts for implementation. Good research is directly related to the time-on-tasks required to carry out a study properly. Continuity of effort is essential to the assessment and understanding of trends. To depend upon one year, short-turn-around, high-impact-producing projects is not an effective management approach to producing high quality research. Accountability studies would indicate that this approach has not been effective in addressing problems of a long-term and serious nature.

The very nature of national level activities must also be carefully examined. National level research and development efforts should center on the in-depth examination of issues that have immediate and long-range implications for policy and that provide for the in-depth assessment and evaluation of nationally driven incentives that are in progress. Federal dollars should not support projects within states that center around limited curriculum development objectives or the demonstration of traditional delivery concepts. The Federal dollar does have a definite place in program and personnel development, where cutting edge concepts are involved, such as, for example, the impact of high technology on the vocational-technical education system. Federal level programs should play a major role in assisting states in the identification and exchange of materials in and among potential users.

Federal level research should support both basic and applied efforts and should be funded to address the following type of questions:

1. What is high technology and what are the career fields within high technology?

2. What is the role of vocational and technical education in the world of high technology?

3. What does increased defense spending mean to vocational and technical education?

4. What impact will demographic trends have on our secondary, postsecondary, and adult level programs in the future?

5. What impact will technological trends have on the future role of the secondary, postsecondary, adult, university, and proprietary providers of vocational and technical education?

6. What does the reduction of Federal resources for vocational programs mean, when the questions of equal access and equitable treatment are weighed against the concept of producing the most capable and best trained workers in the shortest period of time?

7. What does more time-on-task mean in terms of increased training productivity, or is increased productivity a product of "worker attitudes?"

8. How well has the set-aside concept worked in ensuring that the handicapped and disadvantaged are served, or what is the best form of funding for vocational education at the Federal, state, and local levels?

9. What is the cost to society when we do not train disadvantaged, dislocated, misplaced, or handicapped persons?

10. Does our vocational education system really work? Is it cost effective when compared to other delivery systems?

Five things must occur at the Federal level before we can address the research agenda of the 1980s:

1. Major emphasis must be placed on defining the roles of and linkages among Federal, state, and local research and development functions.

2. The Federal level must take a lesson from the states and learn how to establish long-range priorities in a systematic manner. This process must place a premium on the involvement of persons in the field.

3. Federal level resources should be placed in research and human resource development activities that specifically address national issues and that have both immediate and long-range policy implications for our field or that help to assess and evaluate how well we are doing in addressing both general and special goals. The NIE Congressionally-mandated study of vocational education should be expanded and should serve as the heart and soul of this concept.

4. Better uses of demographic and trend information should be made to help determine the research questions (priorities) much further in advance than is done today.

5. A major emphasis needs to be placed on the

dissemination and utilization of the hundreds of products that have been developed in the past decade. Attention to the determination of quality must be built into the implementation of this concept.

State Level Issues and Concerns

The major focus of Federal dollars that are granted to the states should be centered around the concept of program improvement. State level program improvement should take two forms. One should cover the entire spectrum of (a) priority identification and planning; (b) research and assessment; (c) development of concepts and models; (d) curriculum and personnel preparation; and (e) dissemination and utilization with an overriding concern for constant evaluation and feedback.

State level program improvement activities should be applied rather than basic. The major emphasis should be placed on competency based curriculum development and personnel development with balanced in-service and pre-service components. Another major emphasis at the state level should be in the dissemination and utilization of existing materials. States should make maximum use of the products of The National Center for Research in Vocational Education. They should participate in regional networks and critically examine the products of American Association of Vocational Instructional Materials (AAVIM), Vocational-Technical Education Consortium of States (V-TECS), and Mid-American Vocational Curriculum Consortium (MAVCC), and Industrial Distributive Education Curriculum Consortium (IDECC) in resolving their problems. Consortia type vehicles such as these will help to eliminate the duplication of effort and simultaneously maximize the return on each dollar expended.

States needs to be relieved of the "contracts only mentality" and be given the flexibility to use other vehicles for procurring research where appropriate. States needs to be relieved of the current interpretation relative to "impact assessment," which is totally inappropriate and counterproductive to quality research. State level activities should center around the following:

1. The development of competency-based curriculum founded on what actually occurs in the work place. Such developmental efforts must include a balance of the traditional career areas as well as the emerging high technology areas.

2. The utilization of industry-based standards in the identification of program standards and the development of performance testing vehicles.

3. The provision of capabilities in our universities for conducting sound and systematic research and development in a competent and efficient manner.

4. The constant examination of methods used in program

delivery, especially where technological advances have made it economically impossible to provide programs in the traditional school setting and where linkages with industry are critical.

5. The establishment of state level data and information systems which support systematic and sound decision making.

6. The extension of research in the evasive area of articulation as a function of technological impact on program and delivery levels.

7. The continuation of emphasis on how best to train and integrate diverse age, sex, and ethnic populations so as to insure that special needs are met through effective programs.

8. The expansion of research and development programs designed to serve those who reside in large urban centers and rural and sparsely settled areas.

9. The persistence of emphasis on dissemination and utilization activities specifically developed to provide effective linkages among local, regional, and national institutional efforts.

10. The expansion of multi-unit research and development efforts, such as the Vocational-Technical Education Consortium of States (V-TECS), the Mid-American Vocational Curriculum Consortium (MAVCC), and the Student Occupational Achievement Testing Element (SOCAT) of NOCTI.

Finally, states and local level participants should work collaboratively to improve the productive vocational and technical programs at the local level. With fewer Federal dollars available, we must use them wisely and we must systematically eliminate those that are non-productive. We must learn to pick winners. We can no longer afford to fund programs that are not contributing to the economic and human development capabilities of local, state, and national communities. With Federal dollars for vocational education at their present level and with the demonstrated need to stay abreast of changing technology, the best use of Federal dollars at the local level would be to insure local program improvement broadly defined. Future vocational education legislation should clearly state that Federal basic grant dollars must be used to support activities that improve the delivery of high quality programs at the local level. Authority must be given to states to award direct, traceable, and accountable grants to local agencies that can be used for: (1) the purchase of equipment in high-need areas; (2) the purchase and/or development of the best curriculum resources available; (3) the purchase and/or development of the best staff development programs available; (4) the participation of educators in multi-unit training and development activities; (5) the purchase or conduct of planning and self assessment activities that lead to the improvement of career development and vocational guidance programs and services; and (6) the purchase and/or development of a strong local capability to assess and

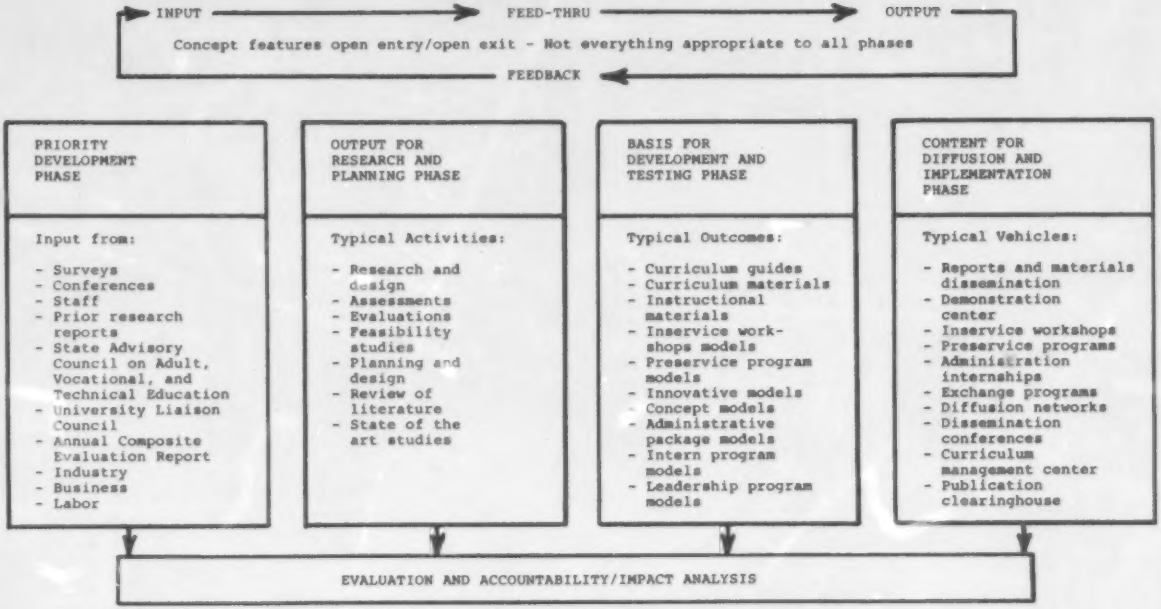
serve persons with special needs.

The concept of a formula grant system for distributing vocational funds within states is worthless since it is not possible to ensure that funds are expended for the Federal purpose intended. Federal funds should be directed at critical priority areas and methods of funding should be developed which assure that the purposes are met. The current funding system used by most states does not guarantee this, and the implementation of a block grant concept will make the situation worse.

Finally, I think research and development at all levels must operate in keeping with a philosphical and conceptual base which provides for front-end planning and careful priority determination involving input from the participant and execution through tested mechanisms and processes for accomplishment. We must get away from the program/turf notions and look at research and development in a conceptual framework that is systemmatic.

The following diagram represents one such conceptual framework which is currently operating effectively in the State of Illinois.

Program Improvement Continuum for a Vocational Education Research and Development Operation



State Level Perspectives on Research Programming for the 1980s: A North Carolina View

E. Michael Latta

North Carolina is the tenth largest state in terms of population, with 5.8 million people, according to the 1980 Census. It has a large number of small villages and towns, with the largest urban center having a population of about 300,000. By the year 2000 the state is expected to have a population of 7 million, with about three-fifths of the increase being accounted for by immigration. The state's school age population is decreasing and the decline is projected to continue over the next two decades. The state's share of expenditures for elementary and secondary education has declined from its previous level of 49 percent of the state's General Fund to the current level of 44 percent, and the local share has been increasing, in contrast to the national trend which shows states assuming a greater share of support for education. The state's total expenditures for education--kindergarten through university--represents 65 percent of the General Fund.

The value of new and expanding industries that the state has gained over the last six years has been put at about $8 billion. It is expected that this expansion will produce 150,000 new jobs before 1984. By the year 2000, the state is expected to add 900,000 jobs to those it now has, with almost 90 percent of them being outside of manufacturing and agriculture.

North Carolina has its own distinctive characteristics, but its vocational education major research needs should not differ significantly from those in other states. Since state level research in the 1960s and 1970s did not address the underlying issues, identifying the critical research questions for the 1980s is essential. The research issues for the 1980s fall into four major areas: (1) Policy, (2) Planning, (3) Finance, and (4) Citizen Participation.

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Policy

Much has been written or said about a national policy on vocational education. Little, however, has been accomplished toward this end. (If the current Administration has its way, nothing is likely to be done at the Federal level to rectify this deficiency.) Until recently, there was little discussion about a policy on vocational education for the various states. That may be the key research issue for most states in the 1980s. Questions to be researched are:

- Does the state have an overall state policy on vocational education; if not, what are the elements necessary for establishing one?

- Is vocational education a legitimate part of the state's educational process; that is, are there specific statutory references in the state's education code in regard to its purposes and goals?

- Is there an adequate definition of vocational education; at what grade level may the subject be taught; what kind of articulation is required among and between the various educational levels and institutions?

Once a "clearer" state policy is established through appropriate research (and action by the State Assembly), the next major issue for the 1980s is: Does the state have the appropriate organizational arrangement to implement its policy? Major subquestions include:

- Should vocational education be directed by a single/sole State Board; or by more than one Board?

- If other state agencies do provide for vocational education programs, what is the state's policy in regard to overlap, duplication, and program evaluation?

In other words, the central policy research issues for the 1980s are represented by two questions: Is there an appropriate state policy on vocational education in place? And, if not, what kind of organizational arrangement is necessary to implement an appropriate state policy?

Some states have undertaken to seek answers to these kinds of questions. Recently, the advisory councils in Maryland and North Carolina completed such policy research studies. Texas, by order of the state legislature, has such a policy study underway. Policy inquiry should be undertaken, especially if a state expects to establish or keep vocational education as an essential component of the educational enterprise. Also, if a state is able to establish a policy for vocational education, it should include the kind of planning, the kind of financial support, and the kind of citizen participation which will be needed in order to achieve the state's goals and objectives.

Planning

Planning is a long-standing activity in all states. The current evidence implies that planning is a compliance activity for Federal purposes. Have the Federal requirements made a difference in program quality or availability in the states? If not, what approach should a state take to enhance its planning process? Should not a state have its own planning process (beyond the Federal mandate)? If so, what components are necessary to develop a desirable plan?

Of necessity, inquiry into the planning process should address at least three fundamental questions:

Question One: What is needed in order to establish a better method of job forecasting?

In most states, even with the State Occupational Information Coordinating Committee (SOICC) and the Employment Security Commission (ESC), there is a continuing call for better data. In response to this need, the Governor of the State of North Carolina recently created an Oversight Committee for Official Labor Market Information. The Committee is to help answer the critical question: "What skills do I need to learn to get a job that pays well and offers a good future," said the Governor.

A critical issue for all states is the question: How can the school be sure that the training is adequate for the workers of tomorrow? This is especially difficult to determine for the elementary and secondary schools, where students are beginning to make early vocational choices. That is why "guidance" has become so important in a state's planning strategy. Will the research in the 1980s assist in finding solutions to the often-indicted guidance field, or will the literature of the 1990s repeat the complaint of the 1970s, that "guidance is one of the weakest elements in most schools?"

Question Two: What is required to assure effective teachers and appropriate curriculum guides?

In order to offer an adequate number of high quality programs, two elements are essential--good teachers and good curricula guides and/or texts. Does the state have a plan for recruiting and training prospective teachers/educators? Is it well-defined and well-developed? Does the state adequately prepare its teachers or has their preparation (pre-service and in-service) grown like topsy without planning? What are the right elements of a professional development plan for teachers? A review of the teacher education situation in most states is cause for concern, and it is an area of inquiry for the 1980s.

One of the weakest planning elements in most states is the training, recruitment, and evaluation of teachers in specific fields. The relationships between the State Board(s) responsible for establishing criteria for teachers

and teacher training institutions need careful study in most states. Even where research has identified vocational teacher education as a critical area of need, too often little is done to improve the situation. Consequently, a critical state research need in the 1980s will be to determine what constitutes a good vocational education teacher; what institutions/agencies have the capacity to prepare them; and how are teachers to be best evaluated and retrained. Related questions are: does state certification provide an assurance that a teacher will be "good"; and, conversely, does the certification process weed out incompetent instructors? The complex process of being certified to teach may now be counterproductive, even though certifying teachers for public and private schools is a legal requirement in most states and has long been practiced. Certification is required at the postsecondary and adult levels in some states, while in others certification beyond high school is not required. Which practice is desirable? The process of certification needs review by the states in the 1980s.

When teachers are employed, it is expected that they are prepared to teach. Various aides (human and instructional) are useful for effective teaching. Perhaps the most essential is the subject text and/or curriculum guide. How are state texts selected? How are the curriculum guides developed? There are several approaches to curriculum development. Is the current approach effective? Have other approaches been considered? What are the essential components of a curriculum development strategy in a state? States will need to research these questions in the 1980s.

Question Three: Does planning focus on the student?

Essential to all planning, as well as to all research, is the benefit its results produce, directly or indirectly for the student. As states plan for the future, the improved use of facilities and staff will be the order-of-the-day. Questions about what is a "school" or a "school day" will need thoughtful review. Are there other environments in which students may be "educated," other than the traditional school? Good teachers and curriculum guides and flexible school schedules should all be to the benefit of the student.

But, in planning for research, is the student considered? How often is the student the focus of the research effort? If the effort does not directly or indirectly benefit the student, then the research effort should be reconsidered.

Much effort is put forth to extol the merits of Vocational Student Organizations (VSOs). While it is widely held that VSOs do benefit students, what research is available that prescribes and describes the benefits to students? In the 1980s, impact research of this type will be needed in order to improve the overall planning of programs at the state level.

Finance

Education is a Federal concern, a state responsibility, and a local function. In terms of educational finance, each level currently participates in a significant manner. While every state's financial support is based on law, tradition, and custom, there are some financing concerns which need state inquiry. One question is: What is the impact of Federal funds on the programs in the state? The fact that state/local governments overmatch Federal vocational education funds by as much as ten to one is often (and currently) being cited as evidence that states/locals do not need continuing Federal support. Is this true? States need documented research to determine the impact of Federal funds.

The North Carolina Advisory Council sought to ascertain what impact Federal funds had had on constructing the Community College System. As of June 30, 1980, 25 percent of the construction funds had been provided by the Congress of the United States. Simply put, an equivalent of 15 of the state's 58 community colleges were financed with Federal funds. Clearly, the often-heard statement that Federal funds count for little, that Federal support is not beneficial to state programs is, in this instance, false. If the Congress is to be persuaded that Federal education support is an essential component of national policy, states will have, of necessity, to prove the value/impact of the Federal funds. Because of this, states may need to study their accounting procedure to determine whether the current practice provides "impact" information. As for vocational education funds, states may desire to utilize state/local funds to "maintain regular programs" and use Federal funds for this purpose "only when necessary."

The same basic issue is important to the use of state funds for vocational education. What is the state's policy on the use of state funds for vocational education? Does the state appropriate specific funds for its vocational education purposes, or does it provide a lump sum from which vocational education must make its case before a State Board or a Budget Office? The state that specifically funds vocational education has one set of problems; one that does not has another set of problems. What are the advantages and disadvantages of each practice?

Research on the financing of education will be a critical area of inquiry in the 1980s. Finance inquiry should address some of the difficult and thorny questions such as:

- What kind of basic funding formula will sustain programs in the future? and
- What kind of "weighted-formula" is needed to serve the disadvantaged and the handicapped?

Any state that does not have a strong legal base for vocational education in its statutes, including its financing, is on shaky ground in the 1980s.

Citizenship Participation

Without active citizen participation, it is unlikely that the public education system will long survive. A belief in public education was postulated early in the life of this nation, and it has stood the test of time. But, life in these United States is changing. Until recent decades, the school population was increasing. Now because the population is aging, many people no longer have direct ties to educational institutions. Due to this phenomenon, citizen participation becomes an area for inquiry for the 1980s.

Most people are aware that vocational education has extolled the merits of citizen participation. How do people feel about the educational programs in the state? Do they feel that they measure up? What grade would parents give the programs offered by the state? Last year in a national Gallup Poll, it was found that 21 percent of the parents gave vocational education a "D" or "F" in terms of the job it was doing for their children. What would be the results of a similar poll, state-by-state? It will become increasingly important to have the view of citizens in order to achieve the state's educational goals in the 1980s.

Another aspect of citizen participation which needs study in most states is advisory councils. Have these councils contributed significantly to improve programs in the state? What impact have they had in bridging the gap between the worlds of education and work? If none, how can the state improve the effectiveness of advisory councils? If a state maintains the position that citizen participation is beneficial, more research may be necessary in order to determine the combination of factors which results in effective advisory groups.

Summary

States in the 1980s will have many research issues to consider. These can be grouped into four major areas: Policy, Planning, Finance, and Citizen Participation. While each of these areas of inquiry may be addressed independently, they are interdependent. A state level research program should, of necessity, study aspects of each area in order to formulate general findings which might give basic direction and overall support for future efforts.

Conclusion

In any consideration of a state level perspective on research programming for the 1980s, two questions seem paramount: (1) What is the state's commitment to research and (2) How has previous research been used to improve programs? For

educational research, these questions should represent the bottom line. If the state lacks a commitment to research, and if the previous research has not been utilized to improve programs, it is unlikely that the best research efforts in the 1980s will have any appreciable impact on a state's education program. In this situation, any study of the issues identified in this paper would have little or no chance of achieving the desired end result of improved programs for students.

Research and Development Programming Recommendations Regarding Curriculum

Rebecca S. Douglass

By way of introduction, I wish, first, to reaffirm curriculum development as an integral part of program improvement, together with research and personnel development, and to emphasize the need for a program improvement capacity at the state level. Second, I should mention that my views regarding full and increased funding, planning, administration, nature, and procedures for state program improvement are relatively in synch with AVERA's legislative recommendations (with some exceptions) and also with the Research Coordinating Units Association's approach to program improvement.

The areas on which I will comment are not comprehensive for the field, but are the issues most prevalent and obvious to state level curriculum administrators in the context of today's colloquium.

User Needs

Having been a state level administrator for curriculum development in Illinois for several years and the last few years with a federally-sponsored regional Curriculum Coordination Center (CCC) I have had the opportunity to witness a variety of needs in the states, not to mention the changing nature of those needs. If nothing else, I have learned that, because of the varying priorities states give curriculum activity, there are many levels of need. However, I have also seen states come together through the intervention of the curriculum network and developmental consortia to share materials and techniques and to learn from one another.

Levels of Development. Generally speaking, there is no dearth of curriculum products available to developers and teachers. Some areas are glutted with materials that, because some states subscribe to the NIH (not invented here) philosophy, will continue to proliferate. Other areas, especially the new so-called high tech areas, are sparse and will receive attention in those states where the occupational needs are significant.

As dollars for curriculum development become tight, states

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*I am grateful to the many vocational educators who shared their views and opinions with me. They assisted me greatly in preparing this paper.

are developing materials less prolifically. At the Curriculum Network meeting earlier this month, states in our East Central region reported overwhelmingly that concentration is now on curriculum revision and fine-tuning rather than on new development. Indiana, a leader in competency-based curriculum, has no new development this year. Maryland, a state highly active in curriculum, is revising all of its state curriculum guides. The Michigan curriculum coordinator has noted that 80 percent of the curriculum need is filled in his state. What remains are low incidence occupations for which the expense of full development cannot be justified. In this situation coordination and sharing among states become paramount.

We see this type of coordination, for example, between Maryland and West Virginia. Their format is so similar that they can with minimal effort adopt one another's curriculum guides, so that if Maryland is producing a new guide for which West Virginia has programs, Maryland simply prints additional copies, West Virginia adds its own cover giving credit to Maryland, and they each disseminate internally by their own method. Because of dwindling levels of development it becomes more important to support mechanisms for sharing and coordination.

Adoptions and Adaptations. Great savings have been documented by this type of sharing and the need for more states to become skilled in the art of adoption and adaptation is obvious. States like Florida have an elaborate system for adoption/adaptation that is to be admired. But because most states do not have the same level of commitment to this goal and there is a continuing need for technical assistance in adoption/adaptation strategies as states realize that "homegrown" curriculum, though it may taste fresher (to use a garden analogy), is not always affordable in terms of time. The successes we have witnessed in the curriculum network and the adoptions and adaptations of the quality products identified by the National Center's dissemination and utilization (D & U) attest to the value of strengthening this capacity in the states.

Tied to the need for adoption/adaptation is the need to insure a flow of information and materials among the states. The CCCs provide this in large measure and their ability to identify curriculum material and human resources, given the ever changing and broad scope of vocational education, is amazing. A Vocational Education Curriculum Materials (VECM) Database has been developed with The National Center for Research in Vocational Education, using the CCCs and the state representatives to the CCCs. It is proving to be a valuable search tool.

Even so, we have within the network what we call "taker" states and "giver" states. Typically the "giver" states are the ones active in development which see the value of sharing from a marketing as well as a professional standpoint. Out-of-state sales of their material build up the coffers for future development and revision, especially when State Department of Education funding is low. Ohio is testament to such a philosophy. Its curriculum lab is practically self sufficient, which enables it to be responsive to unique needs and to carry on work jointly with business and industry. "Taker" states are

typically those which cannot afford a high level of development. Delaware is an example of a state the curriculum activity of which has benefitted substantially from other states' efforts and so has little new to share. There are exceptions to these generalizations, of course. Several "taker" states are also active developers, which do not wish to share. Many smaller states, such as West Virgnia, are great "giver" states because they are grateful that other states gave to them.

A consistent policy from the Federal level would insure that all states were "giver" states and would accelerate levels of adoption and adaptation.

Consortia. Consortia have helped considerably in the transportability of curriculum materials. However, states are indecisive on the value of consortia in tough financial times. Some states adhere to the basic logic that they will get more "bang for the buck" and more consistency by supporting consortium efforts (even if that is all the state can afford to do in curriculum), while others feel that their unique needs are not addressed by groups that concentrate on the "greater good" and on the most prevalent priorities.

Consortia do, however, offer a great potential for advancements in addressing new and emerging occupational curriculum needs in addition to current work. State representatives who sit on consortia boards of control would do well to concentrate on developing "flow" in these areas. Since the Federal government has no control over these groups, it would be helpful for activities with allegiances (i.e., contractors) to be directed to work closer with consortia especially in regard to needs assessment.

Standards for Curriculum Format. A question receiving some discussion now is that of common standards for curriculum formatting. The state directors have been the only group to advocate a common format. The successes of consortia in gaining agreements obviously encourage thoughts of standardization. Curriculum directors at the state level generally discount the possibility of a format all states can agree upon, despite their state directors' exhortations.

An example of format-related differences is terminology. Is a task analysis the same in Alabama as it is in Alaska? One group of states addressed this problem by doing a terminology study and creating a cross-referenced index to be used by review committees in looking at other states' materials.

The East Central regional states feel that the "task listing" is the most important element of competency-based curriculum development. We are now a year into the collection and computerization of task listings used by our 12 states and have begun to enlarge the collection to include other state's and even other countries' task listings. These are available to all teachers and to business and industry for use in development. I share this example of a coordinated effort from the standpoint of a region with many diverse state formats that which still found a way to coordinate.

No state is currently willing to give up its format for another model or common format. It should be noted, however, that consortia already involve states in use of common standards, that most CCC regions have already agreed to common standards (or curriculum components), and that, if one sets aside nitpicking differences, most competency-based curriculum is already pretty similar.

It appears that those who ask for standard format are either actually meaning something beyond format, or are not aware of the many published accounts of curriculum format agreements among states.

Competency Testing Implementation. The minimum competency movement had its effect on the vocational community by sensitizing and creating higher interest in competency testing. Although many states are on record as implementing competency testing the job is far from complete. The upsurge in competency testing has resulted in confusion and several pockets of active development based on non-appropriate standards not tied to curriculum and in some cases not validated. This is not to say that all the work done to date is worthless, only that much remains to be done.

Curriculum directors are concerned over the need for both cognitive and performance tests for all occupational areas. Questions of emphasis confound some states: should they concentrate on teacher competency testing or student competency testing? How can you adopt a national test to a local situation? How are tests to be matched to curriculum? The problems of administering tests are even more complex. Can we afford it, how is it scored, when is it to be given, where (one station or many)? Who administers the test (program teacher, trained test examiners), and how are differences between competency test and other tests, or youth group competitive tests to be reconciled? Research to assist in answering these questions would be of immediate value to state curriculum administrators.

Personnel Development. Another issue on which the states are relatively united is the need for local inservice and infusion of curriculum development into teacher preparation programs. At the CCCs and state curriculum labs teachers come to us daily with requests for help and no prior exposure to curriculum development. The competency-based movement has necessitated large scale or at least prioritized activities in the teacher inservice. Many states report a shift from curriculum development to inservice on the use, validation, testing or development of competency-based curriculum and they are working on the university programs as well.

One of the federally-sponsored curriculum efforts to be held in continuing high regard is the Vocational Education Curriculum Specialist project which has been accepted in several institutions of higher education. Such efforts continue to be needed because few institutions give curriculum development priority as part of teacher preparation. In those areas where curriculum development is offered as something more than a dressed-up methods course, it is not always consistent with state policy. In one midwest state, for example, the State Department

has joined Mid-America Vocational Curriculum Consortium (MAVCC) and adopted its format and procedures. Teachers in this state obviously use the material (as indicated by local school sales), but the universities do not recognize the effort and teach the format.

The need for personnel development is a critical one. The chances of curriculum adoption, adaptation, implementation, and improvement are reduced when presented to unreceptive, unprepared and overworked vocational instructors. The organizational makeup of education departments which separate personnel development from the other entities of Program Improvement encourages the continuation of this isolationism. Even in states where both personnel development and curriculum (and research) are located in the same unit, and their desks three feet apart, turf keeps coordination from occurring.

An effort to provide greater involvement of teacher educators in curriculum, not as discreet curriculum developers under contract, but as collaborators in the improvement of curriculum development practices is desirable.

New and Emerging Occupations. Earlier I mentioned the capacity of consortia to aid in the identification of competencies for high technology and emerging occupations. This challenge is one of the largest facing state level curriculum coordination directors. The problem will largely be addressed by the states with pressing needs for particular occupations. Since all states will not have the high technology occupations, these materials will then be available for adoption or adaptation by other states with less pressing needs.

Several states are using SOICC and other sources to devise intricate computer programs to identify occupations and begin curriculum acquisition and development. Still others are convinced of the value of computerized task list banks that facilitate customized curricula based on both core competencies and competencies discreet to a new occupation. We hope to find ways of sharing these valuable efforts through terminal linking and electronic transmissions among states. We know, for example, that it is possible to send photo-ready copy to a large number of locations as curriculum guides are typeset. An expensive proposition, but one to which curriculum people are attentive and are attempting to find less expensive alternatives. Exploration of such alternatives would be helpful.

Electronically Speaking. Reference has been made to the VECM Database and electronic mail. Our East Central states have recently charged us with switching our previously printed newsletter to an electronic newsletter and to investigate sending task lists from our task bank directly to them by entering the Curriculum Instructional Programs (CIP) code. At our last meeting we had Robert M. Worthington, the Assistant Secretary for Vocational and Adult Education, speak to us via videotape and at another meeting we had three people from Virginia participate in our meeting by conference call. These innovations may not meet all our needs, but they are progress toward more efficient means of communication. The ability to communicate more efficiently is there. At minimum, all states should have the ability to communicate electronically. The uses for such a system are not

limited to curriculum. We need to examine the effectiveness of such techniques and to design and fund an ideal system for communicating all research and development.

Curriculum Improvement. Curriculum people are busy professionals. Ask any of them and they will tell you that. The rigors of daily activity prevent them from providing the leadership expected of them. The vagaries of the state legislatures, state board, state directors, U.S. Department of Education requirements, RFP deadlines, state plans, belligerent contractors, and complaining local directors, all merge to keep this busy person, like many others, from taking advantage of the wealth of information contained in our extant and current research and applying it. Curriculum administrators are very much interested in cognitive style mapping, left and right brain learning theory, elaboration theory and new delivery systems research. Getting the research off the shelf is a continuing problem. It used to be a problem because no one knew it was there. Now the frustration is that we know it is there and have mechanisms to access it quickly, but we still need help.

Synthesis and analysis papers are helpful provided there is time to read them. I'm sure everyone here has a briefcase full of reading material at the hotel, in your car, and at the office. A way of imparting research of improvement to curriculum design and development is needed which will focus attention on the inherent value or lack of value, and encourage action and application.

These are the problematic concerns of state level personnel.

R & D Program Related Recommendations

It is because of my work with the curriculum network that I am compelled to make recommendations that touch on the Federal administration of funds in addition to the above general recommendations regarding continuing state level needs for study and assistance.

1. The Federal Office of Vocational and Adult Education should not be involved in curriculum development contracting. Shifting Federal priorities and the constraints of the proposal review process mitigate against usable outcomes in which the quality justifies the expenses. Curriculum activity, though dwindling, is still lively. Emphasis should be on a research program devoted to longer-term study that will lead to improved curriculum development practices in the states and consortia. This should be accomplished by priority setting involving entities closest to the field (RCUs, SLRs, CCCs) and contracting on a competitive grant basis.

2. A small field initiative grant program for curriculum should be supported. The emphasis should not be on

curriculum development, but on short-term study of problematic concerns that affect curriculum development. If curriculum products are the result of such work they should be delivered to the CCCs for regional review and validation, production and dissemination. They can be screened for submission to The National Center for Research in Vocational Education for its exemplary project in D & U. In this way good work will be shared appropriately and weaker outcomes can be protected from mass dissemination.

3. A most appropriate Federal role is in the facilitation of dissemination and sharing, and in promoting technical assistance for greater utilization. States should be required, not simply encouraged, to submit curriculum developed with Federal dollars to regional curriculum centers for review and submission into the VECM Database. If a regional capacity is worth having, it is worth building upon. CCCs should have agreed upon (at least) standards for inclusion and recommendations. Technical assistance should be built upon regionally-identified priorities and all states should be provided incentive grants to participate in VECM and electronic mail as a minimum.

4. The National Center for Research in Vocational Education should be charged to provide synthesis and analysis of curriculum-related research both in and out of vocational education and to present these findings in indepth review format at an existing annual meeting attended by state level curriculum and research personnel. Personnel development and teacher education should also be involved. (A Program Improvement Conference sponsored jointly by these two groups with The National Center providing support services has been discussed for at least four years. To date, no progress has been made due to travel problems.)

5. Study, design, and implementation of an electronic communication system among the states should be mounted immediately. At minimum all states should be provided a communications link and the results of a study on the use level and expandability of such a system.

In summary, I feel the 1980s should be distinguished by greater cooperation, higher levels of information sharing through electronic media and human technical assistance, and by the attainment of answers to questions which have emerged from the 1970s.

Vocational Education Research for the 1980s: A Superintendent of Schools Perspective

Duane R. Lund

This paper is presented from the perspective of a Superintendent of Schools who is responsible for both a postsecondary vocational technical institute and a cooperative vocational program for five area high schools in rural Minnesota, as well as a K-12 public school system.

The research needs suggested herein are presented exclusively from that point of view, and what follows is not intended to be a sophisticated statement of proposed research questions. It should be read as a statement of a public school administrator with broad responsibilities for secondary and postsecondary vocational education asking the researcher for help.

Vocational Education and Economic Development

Economic development is a perpetual concern of all 50 states and cities of all sizes. The current national recession has increased this concern.

The role of vocational education in economic development has long been recognized by vocational educators. In 1981-82, the American Vocational Association sponsored a special project on this subject including a series of regional conferences demonstrating this role. In a few states and in some communities vocational education has been purposefully included in the design for economic development. The result has been industrial and business expansion, new jobs, and new programs in vocational institutes and community colleges with corresponding increases in enrollment.

There are several implications for needed research.

1. Is there a clear preference by employers for vocational graduates in the trades?

2. Is there a clear preference by employers for postsecondary over high school vocational graduates?

3. What does the employer preceive to be the advantages of working with a vocational school or community college?

4. How can working with potential employers improve

curriculum and instruction?

5. What are some of the problems or deterrents encountered in employer-school cooperation?

6. Are there differences in successful employer-school cooperation ventures between rural and urban areas?

7. What are some examples of exemplary state and community programs in which vocational education plays a key role in economic development?

Vocational Education in a Depressed Economy

Vocational educators have maintained over the years that they hold one of the answers to economic revival and to the long term abolition of unemployment.

Implications for research:

1. Can we look at history and draw any conclusions as to the relative effectiveness of traditional vocational education vs. emergency programs such as the Job Corps, MDTA, or CETA in solving unemployment problems or improving the economy?

2. What have we learned about cooperation between institutional vocational education and emergency training programs?

3. Does our current depressed economy hold any implications for vocational education programs or instruction?

Relevancy of Vocational Education to the Needs of Business and Industry

In many of the traditional areas of vocational education, the changing needs of employers have been relatively slow and easily observed. The response by educators has usually been appropriate. In other areas, technology has been changing so rapidly employers are not always aware of their own needs. There have been estimates that industry spends as high as $30 billion a year on training. Why?

Implications for research:

1. We need models for insuring communication between the vocational professionals (both administrators and teachers) and the employers of our students--ways must be found of working together on a continuous basis to recognize changing needs and

responding appropriately.

2. How can advisory committees be most effective?

3. Do gaps exist between training and employment, and, if so, how can they be closed?

4. How can obsolete programs and practices be recognized? How can they be eliminated? How can we best deal with the trauma of radical change or outright elimination of programs and staff positions?

5. We need systems for identifying new and emerging occupations. How can they be best developed?

Financial and Other Material Contributions from Business and Industry to Vocational Education

The private sector has long supported higher education. With historically generous support for vocational education by Federal, state, and local units of government, there has not been an urgent need for contributions from corporations or individuals. This situation has changed dramatically in recent years. Vocational education is being seriously curtailed and programs even eliminated in nearly all states and at all educational levels. Industry and business benefit greatly from vocational education. Now is the time for them to come to the aid of vocational technical institutes and community colleges. The present national administration has strongly urged the private sector to fill the void of financial aids created by reduced governmental appropriations. Tax incentives for contributions have been improved.

Research implications:

1. How can the private sector best take advantage of tax relief by contributing dollars and goods to vocational technical schools and community colleges?

2. What are the advantages of specific industries of contributing their machines or other durable goods or even software to schools? Are there any hazzards for vocational schools in accepting gifts?

3. Is the funding of an instructional chair in a vocational technical school or community college a feasible contribution?

4. What legal implications are there of the various forms of voluntary contributions?

Vocational Facilities--Buildings

In addition to continued expansion and remodeling needs, we are approaching a time of having to replace entire vocational facilities built earlier this century which are now obsolete or just plain worn out. During the past three decades of rapid vocational expansion, many vocational facilities were built to meet traditional college academic needs rather than the demands of a more practical industrial or business environment in which the students would some day work. Few educators, and fewer architects, have recognized the difference between academic and vocational facility needs. As a result, not only have the buildings lacked practicality, but they have been unnecessarily expensive.

Implications for research:

1. What have we learned about and from vocational facility construction in the past three decades?
2. How will facility needs change in the 1980s and 1990s?
3. Can we utilize abandoned industrial or office buildings for satellite programs?
4. What about training on location, particularly for retraining or upgrading of employees?

Indian Vocational Eduction

Much has been written, but relatively little has been done, about vocational education for minorities--especially for Indians. Those programs which have been instituted have seldom been successful. The need remains great. No minority is as economically destitute as the Indian population.

Implications for research:

1. There is a need to identify and diffuse information about successful ventures.
2. What have we learned from our failures?
3. What are the special needs in vocational education for Native Americans?
4. How can we tie vocational education to economic development on the reservations?

Secondary vs. Postsecondary Emphasis

In the vocational education community, we have studiously avoided the issue of where we get the larger return for our investment--secondary or postsecondary? We have been concerned--and properly so--about fragmenting the vocational family. Our philosophy has always been, "If a little vocational education is good; more is better." Therefore, we have started in pre-school with career awareness programs and infused vocational education into the curriculum at every opportunity through high school and postsecondary education.

In this time of financial crisis in our schools, we have come to "the day of reckoning." Priorities must be established and the dollars invested where we find the greatest return.

Implications for research:

1. At which level, secondary or postsecondary, do we have the greater retention of students for given occupational programs?
2. What are employer preferences?
3. Is there duplication between secondary and postsecondary programs?
4. Are there ways of improving articulation between specific secondary and postsecondary programs so that dollars and student time are not wasted?

What Has Happened to Career Education?

In the past decade, career education was "discovered." Its definition has never been clear, but whatever it is, it has been changing since the day it was boldly proclaimed by then U.S. Commissioner of Education, Sidney Marland. In some schools and in some states it has been described as the concept that every child should have a marketable vocational skill upon graduation from high school. At the other extreme, in many schools, career education has meant "career awareness." In other cases, the definition has resolved itself into one of "vocational exploration."

Whatever the ultimate definition, career education, as a concept, has had a profound effect on elementary and secondary education in general and on vocational education specifically.

Implications for research:

1. What is the state of the art in career education?
2. What have we learned from our experiences with career education?

Teacher Certification

In vocational education, we have long walked a tightrope on this issue. On the one hand, we have insisted that our teachers and administrators have relevant experience in the world of work; on the other, we have required professional teacher training, often insisting upon an eventual college degree.

Implications for research:

1. Is there an ideal balance of the practical and the academic?
2. What has worked well in the way of certification requirements and where?
3. How can the certification process insure continued expertise in the trade together with continued professional growth?

Teaching and Technology

In no area of education is the potential for the use of technology in actual teaching as great as in vocational education. Teachers need help, however, in how to use computer technology and need to be aware of telecommunications as a vehicle for instruction. It may well be that every vocational graduate should have computer literacy.

Implications for research:

1. What is the state of the art with respect to the use of computers in teaching?
2. Are there success stories that can be identified and modeled for dissemination?
3. How can we best use computerized instruction?
4. What are the implications and possibilities of the new developments in telecommunications for instruction?

Program Efficiency

Unlimited financial resources for education, even vocational technical education, seem to be a matter of the past. The challenge of the future is, efficiency, for we are asked not only to do more with the same resources but also to do more with fewer resources.

Implications for research:

1. Alternative delivery systems, particularly computer aided and telecommunication instructional systems. For upgrading/retraining (adults) there needs to be emphasis on reaching out to people where they live and earn.

2. Development of practical (and meaningful) cost/benefit analysis systems.

3. Industrial internship/cooperative education models.

4. Models for cooperative resource utilization between public and private sectors.

5. The development of computer-based, phone accessible, data base systems for vocational technical education (curriculum, computer aided instructional software, occupational skill requirement, etc.).

Management Systems

Change must be facilitated by increasingly effective and adaptive management styles. These management systems must give increasing recognition to the worth and dignity of the individual. Additionally, the complexity of managing innovative and societal need-responsive institutions in the future cannot depend upon the limited capacities of single or limited numbers of individuals commonly called administrators.

Implications for research:

1. The development of participatory decision-making models.

2. Models of public/private cooperation.

3. Models for cooperation between different educational systems (secondary, technical, community colleges, 4-year colleges/universities).

4. "Recycling," updating managers, particularly with respect to information systems and processing.

One idea is common to all the concerns I have outlined, and that is the idea of "change." Therefore, I can conclude by saying that vocational and technical education research and development can best serve the system by assisting practitioners to cope with change in an effective and timely manner.

Vocational Education Research Needs in the 1980s: The Local Perspective

A. Thomas Oyster

Briefly, a word about the presenter and his community: Washington County is one of the three westernmost counties in Maryland. It is bounded by the Appalachian Mountains on the East and West, and borders Pennsylvania on the North and the Potomac River and West Virginia on the South.

One hundred and twelve thousand residents reside in the mountains, farms, and small towns. Residents are employed in service occupations, in numerous small and large factories, and in farming as orchardists, grain, cattle or dairy farmers. The average adult completed the eighth grade and earns $15,000 per year.

In 1982, 17,500 students are being educated in small rural schools and moderately large city schools. There are 27 elementary schools (K-5), seven middle schools (608), seven high schools (9-12), and two area vocational centers. Each high school is comprehensive and contains five or more vocational programs. There are 67 different vocational programs taught by 107 vocational professionals. More than 1,000 students graduate with vocational training each year.

The presenter has 12 years experience as local Director of Vocational and Industrial Education. His duties include among others, annual and long range planning, monitoring and analysis of student career interests and labor need data; design and modification of vocational program content; and communication with vocational advisory committees and school administrators.

Introduction

It is apparent that vocational education faces new and unique challenges during the next two decades. Difficult economic times and drastically declining school enrollments in many areas of the country are of major concern. Most school systems throughout the nation have experienced or are attempting to cope with fewer educational dollars and fewer students. Educators find this task most difficult, for they have developed skills in increasing programs and have had little management experience with austerity and reduction of programs and services. Peradoxically, education like business and industry is being forced to reduce, retrench and at the same time improve or expand its services in efforts to survive.

For vocational educators, the dilemma centers around reasonably new facilities, programs which have become traditions, antique equipment which is no longer repairable or equipment which is too new to replace. Vocational instructors grew up and worked in their trades for 20 or more years, five to 20 years ago, and now many seem more bent on retirement than launching curriculum changes or participating in technical updgrading experiences.

Local school systems are bogged down by the six-period day and the Carnegie unit; hindered by academic teachers who believe a moment lost from their content area is a cardinal sin; and burdened by the nine-month school year which was scheduled to allow students to help on the farm, even though students of the 1980s hardly know what a farm looks like, and parents who are so concerned about quality education that they demand that their children's schools pick up that old security blanket containing the "3Rs" and use it to prepare children to be successful in the year 2000.

As increased numbers of educational systems, businesses, industries and individuals experience the dimensions of Alvin Toffler's, "Third Wave," they become aware of their inadequacies. Inadequate in their understanding of the newer technologies; inadequate in their readiness--maybe, willingness--to experience and benefit from electromechanical devices, controls, and systems; inadequate as they attempt to compete in the market place, search for technicians, or develop and implement new employee training programs.

Change

What does all this mean? Simply said, from the perspective of a local director of vocational education, it is well past the time to change the vocational education cycle once again. But change what, change where, change how, change when, and change why? Do we deal with change in the old intuitive way? Bently said, "subjective evaluation is used when the opinion of teachers, administrators, or supervisors will suffice . . . it is considered to be the least valid method . . . ." Do we use standards as in objective evaluations? If so, what are the standards? Do we base change on performance evaluations? If so, performance terms are required.

The unanswered questions are still:

> Change What? Is it the vocational program content we change? Is it length of school year we change? Do we change to open-entry-open-exit vocational education? What is it we need to change?
>
> Change Where? Are changes necessary at the Federal level, the state level, in Washington County, Maryland, or all three?

Change How? Do we change delivery systems, processes, state or local policies? Do we change to competency based vocational education, or do we change the way we evaluate the vocational education system?

Change When? Is the change necessary yesterday, today, or tomorrow? How do we compute when the moment for change is here?

Change Why? Is it because industry and technology have changed? Is it because we have moved from our industrial society to a post-industrial one? Or because we are moving toward becoming an information-seeking society?

Timelines

There are many ways one can approach seeking the answers to the aforementioned questions. But we must keep upper most in our minds that timeliness is of the utmost urgency. It is my feeling that through a timely, viable, research program on the national, state and local levels answers can be found. Do we use the research techniques entrenched in academia? Namely, identify the problem, review the literature, identify a pilot solution, pilot test it for a year here and there, and then disseminate the research results, and hope that within the ensuing five years or so that some school system will try a modified version. Or is there a possibility for research to move into the "Third Wave?"

Of course, we have taken that first step with computer assisted data analysis. But what about programming for change? For thousands of years hindsight was said to be clearer than foresight. Well, will this truism change? Not likely, but what is changing rapidly is the amount of available time to alter the sequence of events. How can we conduct research so as to produce timely results? Is it possible? Has research become a continuous process function? If so, all vocational administrators need to accept their share of the responsibility, in an objective manner. If they are not to engage in original research, then they must develop skills in evaluating the data, discerning local implications, and determining local response.

Should there be a national research model, or are the characteristics of occupational training in the Southwest different from the characteristics of the Northeast? Should our research efforts focus on identifying strategies to meet the needs of non-traditional clienteles, of displaced workers, or of individuals entering the work place from other countries who do not speak English or whomever?

The Displaced Worker

An article in the July 4, 1982, Washington Post by Lippman and Potts, entitled "Layoffs Found Across the Board," reported that 900 cannery workers at the Bumble Bee Tuna plant in San Diego were laid off, and that John Morrell Division of United Brands laid off 1,300 due to plant closings and will lay off an additional 750 by August. The article also reported massive layoffs in housing, steel and autos, lumber, copper, tires and also smaller numbers in electronics, textiles, machine tools, petroleum, and that since 1980, 30,000 Federal jobs have been cut. Perhaps the most alarming statistic was identified in a June 15, 1982, U.S. Steel Corporation letter to management which stated that "35,000 employees were on lay off" and that "200,000 permanent jobs have been lost in the steel industry since 1965." Should our educational systems sit idly by suggesting that they have no mandated role in providing retraining for these people? Suppose we accept the responsibility, what research is available on future jobs and training criteria?

Is the prediction accurate that by the year 2020 all autos will be made outside America, that Japan has improved on American ingenuity and that it will be more efficient and profitable to buy America's transportation than to produce it? And, if and when this occurs, will we have conducted the research to provide alternatives for the displaced worker?

Needed Changes

It is said that dissatisfaction is the catalyst for change. We know that dissatisfaction is sometimes heard loud and clear, sometimes seen in the faces of others, and, of course, is sometimes unnoticed by the uncaring or insensitive. But change is as inevitable as dissatisfaction. We must find ways to manage both the catalyst, the process, the products, and the outcomes of change. The management of change requires a firm hand on the wheel, an open mind, knowledge of what has been good and why, and, of course, a reasonable clear vision of where one is going.

Unquestionably, what vocational education has accomplished in the past is, in the main, good. It is a firm foundation for future changes, with its financial resources, facilities, personnel, equipment, as well as its experiences over time and its successes. I believe we have the greatest training potential and resources in America. But has our to-be-served-population focus become to narrow? Have we become so turf conscious that we have forgotten our history? Have we forgotten our original purpose--to develop citizenship and to improve the capabilities of all persons for work and a meaningful life?

Do we need to wake vocational folk up? Our future demands that we move into the community to sell our graduates and sell the training and resources we can offer. We must develop different "modus operandi." It is my feeling that we need to hire

"Madison Avenue" to sell Vocational Education. We need new programs for the secondary, postsecondary, or adult student in need of skill foundation, skill upgrading, or retraining. In these respects, we need to redesign our vocational planning process. Currently, in Maryland, our planning process focuses upon a projection of existing data in a rote manner. There is little effort directed to the identification of products and their nomenclature. Nor is our needs assessment approach sufficient. What about a revitalized systems approach? Roger Kaufman, in his enlightening book, Identifying and Solving Problems: A Systems Approach, suggests that we should separate needs from wants and focus our problem solving efforts on identifying products to be produced and on desired outcomes. He suggests, perhaps analogous to education, that "we could argue almost forever about means if we don't know what we want to accomplish (and why we want to accomplish it)."

In conclusion, I would like to offer some suggestions for (1) research emphases, (2) change in the research process, and (3) foci for research.

1. Research Emphases for the 1980s

   o Public Relations

     Focus: Our focus should be the identification of the contributions of vocational educators to the development of Americans in the broadest sense.

     Example: Sonny Richardson, an academic student at North Hagerstown High School in Washington County, Maryland, a member of the State Superintendent's Student Advisory Council, stated that she learned more about grammar, punctuation, and proper writing form in an office practice course than she learned in her previous eleven years of school.

   o Revitalization of Facilities and Staff

     Focus: Facilities built in the last 15 years and staff which grew up in an industrial society are in need of upgrading so that adequate training in needed occupations, including high technology, may be provided to new entrants into the labor force and displaced workers.

     Example: Thousands of workers have been laid off from nearly every job in our society because they lack needed skills. And our young folk have a right to believe that the skills we give them will lead to employment.

- o Identification of Emerging Occupations and Respective Training Criteria

  Focus: We must use futures research techniques to identify emerging occupations and respective training criteria.

  Example: Toffler mentions four clusters of related industries where human activity will be concentrated: electronics and computers, the sea, space, and biology.

2. Suggestions for Change in the Research Process

Research will need to change its approach in seeking answers to problems. Some of the changes must include:

- o Shortened process times
- o Built-in incentives to identify and develop alternative and revised delivery systems
- o Criteria for grant awards which require deliverables of national interest, address specific needs, and accomplish specific goals
- o A systems approach to identifying needs and products

  A. One would assuredly be upgrading instructor skills

  B. Another would be improving the management skills of administrators including group, as opposed to individual, autocratic decision making

- o Translation of research findings into language that allows the practitioner to understand and implement viable programs

3. A Focus for Research

Research in the 1980s should focus upon these major areas:

1) Identification of past successes and future contributions

2) Identification of new frontiers, one of which is high technology

3) Identification of evolving learning methodologies

4) Identification of incentives which stimulate excellence

5) Demonstrations and internships in research activity

6) The development of strategies for promoting vocational education and its capabilities

7) Development of articulation strategies that formalize lifelong learning processes between educational purveyors.

Research and Development in Vocational Education from a Local Perspective

George R. Quarles

Our effectiveness as vocational educators depends largely upon our ability to understand social change and assess the implications of social change on the educational community. Inevitably, change produces uncertainty and raises questions which require investigation. We cannot plan responsibly if we do not have the courage and commitment to seek the answers and knowledge which we need.

Beyond the valuable learnings available to us from such national resources as the National Institute of Education, the "Programs of National Significance" section of the Office for Vocational and Adult Education, and The National Center for Research in Vocational Education, we must be prepared to take our own initiatives in investigating those crucial questions which directly affect vocational education within the New York City school system. As a local director of vocational education in a large urban area, I am keenly aware of the need to develop information and data which form the basis for decision making. It is for this reason that we established, within the New York City school system, the Office of Occupational and Career Education (OCE), a unit whose responsibility is Planning, Research, and Development. It is through this process of applied research that we are able to accumulate the knowledge which allows us to address some of our pressing local vocational education problems.

An example of one of our local initiatives was "The System-Wide Tests of Occupational Programs," a four-year research project designed to assess the impact of our vocational education programs. This research, conducted by Dr. Deborah Perlmutter* of OCE, was divided into three discrete sections:

1. A follow-up study of students denied admission to vocational high schools. We needed to answer the question: What happens to students who apply for admission to vocational high schools and are turned away because of lack of space or other reasons?

2. A follow-up study of graduates of a variety of occupational programs offering training in automotive careers. We wanted information on the relative effectivenss of the five different types

*I am pleased to acknowledge the assistance provided by Mrs. Vera Hannenberg, Project Director, Planning and Development; and Dr. Deborah Perlmutter, Project Director.

of automotive programs as measured by the performance of completers in the work place and in continuing education.

3. Employer measure of industry satisfaction with the performance of our graduates. The obvious question is: How well are our graduates performing on the job?

System-Wide Tests of Occupational Programs affirmed the importance of vocational training in assisting students to reach their career goals.

The research findings clearly highlighted the need for:

- o An expansion of occupational training opportunities and access for all students.
- o The need to develop job-seeking and employability skills and competencies.
- o The need for continuous follow-up, "feedback" from students and employers for program improvement purposes.

I divide the areas of inquiry which I propose into two: (a) the phenomena which we observe within the educational community itself, and (b) the questions relating to the course and nature of our changing industrial community. The following research questions and suggestions are raised in light of the view that it is the job of vocational education to prepare young people and adults for productive work, so that their independence as self-sustaining members of society may be fostered. The questions are also raised with the knowledge that society is not a static place to which one goes when he or she "grows up," but a milieu of dynamic forces. In our lifetime, the dynamic nature of society has been evident in the vast changes in the world of work, including the rapid development and use of computers, the widespread exchange of information through telecommunications, the move toward the dual career family, and the recognition of the obligation of the schools to serve the vocational education needs of all segments of the population.

Four points of focus are used to organize some of the significant questions which the basic statement above raises for vocational education. They are: (a) the educative process, (b) the individual students, (c) the needs of economic development, and (d) collaborative efforts. It should be noted that the questions raised under these areas overlap. The four points of focus will, however, serve as a method of organizing the presentation and discussion.

Focus on the Educative Process

1. What vocational education techniques, from the broadest sweep of reorganization of instructional units to the questions of

instructional support systems, can be developed to continue to meet the problem of educating those for whom traditional programs do not work?

2. What is the best use that can be made of the new technologies as a medium for teaching?

    a) How effective is Computer-Aided Instruction (CAI) and/or Computer-Managed Instruction (CMI) in delivery of vocational education?

    b) How can CAI/CMI be used in teaching basic skills remediation in conjunction with vocational education?

    c) Are CAI materials more akin to textbooks that are produced by publishers with a large population as audience, or are they more effective when developed as teacher-made materials for individual students or particular classes?

    d) How can the effectiveness of CAI/CMI be evaluated both in terms of outcomes and costs?

3. Which factors make one program more effective than another?

4. How can the outcomes of research on program effectiveness through such concepts as mastery learning and the personalized system of instruction be readily incorporated into existing vocational education structures?

5. Evaluation and follow-up studies in New York City show that students who receive occupational training are generally successful in meeting their postsecondary educational and career goals. To what extent can vocational education be incorporated into the general education process without sacrificing the sense of "specialness" and camaraderie that it now often produces?

6. How can individual curricula be developed so that individuals, who have acquired some competencies and require others for a specific occupation, can receive the needed modules in a "tailored" program?

7. At which educational levels can the impact on the vocational education of students be made most effectively?

Focus on the Individual Student

1. The recent New York City research (System-Wide Tests of Occupational Programs) demonstrated that students who get their choice of occupational training programs in high school show greater retention of what they were taught and greater achievement than those who had no choice.

    a) How can career guidance activities be more effectively

directed and evaluated for long range outcomes?

b) How can students be encouraged to make tentative choices at various developmental stages?

2. What are the expected outcomes from the appropriate evaluative criteria for computer-based career information delivery systems?

   a) What are their generic strengths and weaknesses?

   b) At what points in vocational education and career decision making are they most effectively used?

   c) Which factors make one career information delivery system more effective than another?

3. What are the most appropriate means for evaluating the placement of special education students within the "cascade" of less restrictive to more restrictive vocational education settings?

4. The System-Wide Tests of Occupational Programs research shows that students do not generally see themselves in the same way as employers do. They rate themselves differently from the employers and, more importantly, they rank particular employability skills and attitudes differently.

   a) How effective are current curricula in developing employability skills?

   b) How can an individual's advancement in these skills be measured?

   c) How can one assess student preparedness and readiness for work in terms of both employability skills and occupational competencies?

Focus on the Needs of Economic Development

1. In an era of rapidly changing or modified occupations, transferable skills are needed by a large portion of the labor force.

   a) How can those skills which are transferable from one occupation to another be identified?

   b) How can educational institutions and business/industries keep each other apprised of the skills transferable between occupations so as to bring about retraining most effectively and efficiently?

2. Demographic analysis indicates a progressively older population.

   a) What is the best organization for meeting the vocational education needs of this population?

b) Are the required educational techniques different from or similar to those used with younger populations?

c) How should the outcomes of programs for older populations be evaluated?

3. How can those students who are unable to master the "high tech" skills be incorporated into the economy in meaningful work?

4. To what extent, in what areas, and at what levels of entry are business and industries providing occupational training to new and existing employees?

   a) What basic skills are required of those entering their programs?

   b) How do program offerings differ by company type and/or size?

   c) How do company programs evaluate outcomes of completers?

Focus on Collaborative Efforts

1. How can joint business-education efforts be used to attract sufficient numbers of vocational education teachers in light of the widening gap between industry and education salaries, particularly in "high tech" areas?

2. How can Federal and state labor market statistics be used at the local level for more effective institutional planning, curriculum "futuring," and individual career guidance through career information delivery systems?

3. How can all the occupational training resources of a community or city (programs of business, Community Based Organizations (CBOs), government agencies and education) be truly linked to maximize use by all segments of the population?

   a) What common base of competencies and outcomes can be developed?

   b) What evaluative criteria can be used to compare programs across institutional governance?

4. How can joint business-education efforts be increasingly used to train students in those occupations which require expensive, sophisticated equipment, and equipment which undergoes rapid change?

Of all the important research questions I have suggested, five issues emerge as key and immediate priorities. I know these are priorities for New York City and many other large urban centers. I believe they are also questions of national significance. Since many of the questions overlap, finding answers to the

questions implicit in these five issues will also shed light on other questions. They are:

Focus on the Educative Process

Key Issue: Meeting the vocational education needs of students who do not respond to traditional educational processes.

Focus on the Individual Student

Key Issue: Developing strategies to help students become more employable.

Focus on Economic Development

Key Issue: Incorporation of all members of society into a productive labor force.

Key Issue: Examination of the provision of training by business and industry to make more efficient use of all vocational education resources.

Focus on Collaborative Efforts

Key Issue: Recruitment of vocational education teachers and utilizing business and industry as training resources, both in industry sites and in the schools.

Vocational Education Research for the 1980s

Merle E. Strong

I wish to thank the Coordinating Committee on Research in Vocational Education, the American Vocational Education Research Association, and the National Academy of Sciences for making this meeting possible. It is highly significant that such a group as those attending it has the opportunity to provide their best thinking on research approaches conducive to the development and maintenance of a sound vocational and technical education program.

My assignment is to speak to local level perspectives on research, which I feel very comfortable in doing as a result of my close working relationships with local districts both as the Director of the Vocational Studies Center and as an advisor to doctoral students, many of whom are vocational education administrators. However, my pay check since I left a local directorship in 1955 has been from a state or Federal agency.

History since 1965 has shown that, in order to continue support for research in vocational and technical education of any reasonable magnitude, there has to be a dialogue and understanding among the Federal, state, and local levels. This fact, I believe, we should keep in mind at each level as we plan research directions. I used 1965, the year that funding for research became available under the Vocational Education Act of 1963, as a base year, because prior to that time the research effort in vocational and technical education was quite meager.

Before getting into specific research suggestions, it is appropriate to emphasize that we must at all levels get behind an effort to have research more adequately supported. As all of you are aware, research and development dollars have decreased in number. In a time of tight dollars, we seem to have reached a position in which research dollars are very vulnerable. This obviously is short sighted.

The research needs in vocational education are to a great degree a reflection of the challenges faced in accomplishing the goals of vocational and technical education. Goals, purposes, rules, or objectives have been spelled out by many groups and individuals, and it is not appropriate to treat them in detail here. However, it seems clear that at this point in history an overriding purpose is to provide individuals with the skills and knowledge necessary to obtain employment and/or be upgraded in it. It is also clear that an overriding societal concern is the enhancing of productivity, which will contribute to a stronger economy at all levels.

I will suggest some broad categories in which there should be a targeted effort with some indication of specific issues, challenges, or research topics. These are not stated in order of priority.

Finance

Research is needed to provide information on alternative sources of funding and their consequences. What is the impact of Federal financing? What impact would increased funding have under a number of different priorities?

At the state and local levels there continues to be debate on the degree of state versus local support. At the postsecondary level, the effects of increasing tuition or user fees is an area for study.

In Wisconsin cuts and threats of cuts have greatly affected the vocational education program. State staff personnel has been cut, dollar support to the universities has practically evaporated. Discretionary funds, which were already in short supply, are no longer available. At the secondary level, the Department of Public Instruction has cut staff drastically. One consequence, as an example, is that distributive education is no longer allocated a position. The position has been taken out to fund projects through the universities in the future, but conduct them inhouse. Such an activity as evaluation, which has been carried out by one of our universities in cooperation with the Department of Public Instruction and local schools will probably not exist in the future. A library resource center developed at a university to serve local schools, which has had an excellent track record will no longer exist. Curriculum development activities have also been curtailed. I do not believe Wisconsin is atypical in this time of financial crunch. Therefore, I see methods of financing to be very critical.

While cost benefit studies are less than perfect and the results have often been used or interpreted in strange ways, work needs to continue to be undertaken to assess costs and benefits. This is particularly true for those elements such as research that are directed at improving program quality.

Administration

The proposal of the present administration at the national level suggests major changes in state-Federal relationships. At the state level disagreement continues over who will be in charge of vocational and technical education and manpower type programs at state levels. At the local level there continue to be jurisdictional problems among the various agencies involved, as well as obstacles to articulation between and among them. The most sure thing is that there will be changes in financing and in

administrative structures at all levels and certainly in decision making. A bold suggestion would be for this group to take the initiative, probably through foundation funding, to launch a national study in the area of finance and administration. My plea is that we get involved in the antecedents of policy making.

Collective Bargaining

Collective bargaining has become a reality for a large number of our school systems. Its form has followed the industrial model to a great extent. It now seems time to evaluate the strengths and weaknesses of the present model in an effort to identify alternative models which may better serve the administration and staff and, more important, the trainees of the nation. This is a somewhat narrow and specific area of concern. However, I believe it to be quite important. Our present model has been somewhat constructive in improving the benefits of teachers and other staff, though they still are below what they should be. But, at the same time, the model has been responsible for the development of an adversarial relationship between staff and management which is often not in the best interest of serving youth and adults in educational programs.

Planning

Data needs for decision making differ at local, state, and national levels. There is a need at the local level for a system or systems that can reflect not only local needs but also regional and national priorities. Continued work is needed to interpret, integrate, and make useful the mass of manpower demand data that is available in terms of what it means for a local district. The schools have been particularly challenged by the new technologies and how to program for them. Robotics is just one example. There is a new demand in our manpower planning to have a firmer fix on the requirements for employees in these newer areas.

Evaluation and evaluation systems are other areas in which additional research is needed. There is a continued need for a system that will provide the necessary management information to help keep programming abreast with technological changes.

Curriculum

The need for curriculum research and development will continue. The critical need will be in keeping up with technology in the more traditional occupations and developing new

programs or courses for new or changed occupations. There will be closer cooperation with the military in training. Curriculum will need to be tailored to meet the needs of both.

Competency based individualized instruction requires considerble research and evaluation. Effectiveness and efficiency need to be evaluated as compared to other strategies. What formats are most effective, for whom and under what conditions? Competency based individualized instruction requires, in my opinion, substantial testing to make it effective and various forms to accommodate various learning styles. We are on the edge of a revolution in hardware with minicomputers, video discs, and other innovations. It will be important that vocational educators be involved in the software development. Hardware should be a tool of instruction rather than drive the system.

Articulation

Articulation seems to have become the new word of the decade, and I hesitate to use it. Articulation is used here to mean the building of bridges in curricula between programs and institution connections. Of particular concern is the high school-post higher levels. Theoretically, competency based individualized instruction holds the answer, but all schools will not change. Nor is the evidence available to say all should, and total change may not be the only strategy.

A similar problem exists at other levels. For example, the field of nursing faces issues of articulation between associate degree and baccalaureate nursing programs. The problems are not easily solved, and there are some cautions to be observed, particularly with respect to who would establish or dictate the curriculum for entry level jobs. We must resist an approach that is so well articulated that its main purpose is not to educate for the labor market but, rather, for higher and higher levels of education.

There is also a need to research the means for articulating or cooperating more closely with other manpower training programs. CETA is an obvious one, as is the military, but training programs in the private sector are often omitted in studies of articulation.

Equal Opportunity

Equal access and/or opportunity are only an idea at this point, even though, as I believe, substantial strides have been taken toward realizing the goal. Obviously, the problems of the central city have not been solved; nor has ready access to training in rural areas. Continued research and development are needed to solve these problems, as well as for making traditional

male occupation training opportunities more readily available to females.

Historical Research

Few become excited about historical research in vocational and technical education. However, we seem to be reaching a point in our development in which many newcomers are discovering, sometimes by accident, what has been known for years. This is not to say that we should do historical research in order to repeat history but, rather, so that we may learn from it.

Patterns for Funding Research

Research needs to take place at many levels. When the Vocational Education Act of 1963 was passed, there was limited capability in vocational education for research. Research funds since that time have attracted and developed a substantial research capacity. The problem now and in the 1980s will be the securing of adequate resources to carry out research.

From the local level perspective, the action is at the local level. In Wisconsin some of our postsecondary institutes have developed substantial capacities for conducting research. In others, the research unit is still a data gathering unit.

At the secondary level in Wisconsin, where we have no categorical state funds, there is little incentive, resources, or capability for research. I suspect Wisconsin's main difference from other states may be its balance of strength between the postsecondary and secondary systems.

States vary in their research or research leadership capabilities at the state level. RCUs either as a part of a state department or a university are quite uneven in their effectiveness. This is often a reflection of the resources provided, since many operate only with earmarked Federal funds. Centers such as the Vocational Studies Center in Wisconsin have had success. Our Center is a "soft money" operation at the University of Wisconsin-Madison. Its mission originally was primarily to serve the needs of vocational and manpower programs in Wisconsin. However, with participation in federally-funded projects, it has taken on a national character with nationwide dissemination. However, it lacks any kind of a substantial basic grant, and, with the shrinking of funding, it is now in a period of retrenchment.

I commend Bob Taylor and his leadership at The National Center for Research in Vocational Education. He has been aggressive, persistant, and successful in commanding resources. We need a national center. However, it should not deter research or capacity building at other levels and locations. I applaud

The National Center, but let us seek additional resources that will go beyond this effort.

My concern is that we build and maintain a research and development capability across the nation. There would be merit to revisit the grant approach. The maintaining of a staff and a capacity over a long period of time on contracts alone may not be reasonable. Some research is more than a year or 18 month proposition and may require more flexibility than is feasible under a highly structured contract.

PART IV

Researchers' Perspectives on Research Programming

Perspectives on Research Programming: Views from the Editorial Board of The Journal of Vocational Education Research

J. Dale Oliver

The Journal of Vocational Education Research (JVER) is the official publication of the American Vocational Education Research Association (AVERA). It is a refereed publication and serves as a communication vehicle for the vocational research community. The JVER Editorial Board is made up of 12 active members of AVERA who are experienced in the conduct of research or research related activities and/or have experience in editing or publishing articles for professional journals.

As Editor of the Journal, I surveyed members of the Editorial Board to determine their suggestions of important research and development areas for the 1980s. Their responses indicated their preferences for research in six major areas:

1. The role of various deliverers of vocational education.
2. Alternative modes for delivering vocational education instruction.
3. Maximizing the marginal benefits of vocational training to the individual and to society.
4. Alternative approaches to preparing and updating vocational teachers and specialists such as administrators, researchers, curriculum developers, etc.
5. Managing vocational education at all levels.
6. School/work transitions.

Some problems and concerns relating to each of these areas are worthy of comment.

Two of the major deliverers of vocational education are business and industry and public secondary and postsecondary schools and colleges. Training programs are also offered by proprietary schools, the military services, and a variety of organizations with funding from CETA. The roles and interrelationships of these agencies in providing job training for youth and adults need to be clearly defined. It is important to determine if such definitions would facilitate coordination and cooperation in planning resulting in more effective utilization of available resources in meeting the needs of individuals and society.

Vocational instruction may be delivered through various modes. Questions arise relative to scheduling instruction in

single vs. multiple periods, varying the length of programs, and permitting students continuously to enter and exit the programs. The instruction may be delivered using individualized vs. group approaches with various combinations of methods and materials. Flexibility in the time to offer instruction may be required to accommodate the needs of individuals and the needs of employers. Information is needed to determine the most effective approaches to scheduling and delivery modes that may be utilized under various sets of circumstances.

It is desirable to maximize the marginal benefits of vocational training to the individual and to society. Conflicts arise, however, in achieving such a goal. Programs which maximize benefits to individuals may not maximize benefits to society and vice versa. For example, programs for students with special needs may greatly benefit the students through increasing their knowledge and skills; from the standpoint of society, such students are still not efficient workers, thus offering minimal economic benefit to society. Programs for students with special needs may, of course, be offered to achieve national equity goals, and information is needed to determine the extent to which vocational education aids in meeting such goals. Vocational education normally operates in a framework of limited resources. It is important to compare the marginal costs with the marginal benefits in allocating resources. A great deal of information about marginal costs and marginal benefits is needed in making decisions regarding which training programs should be offered, the level at which they should be offered, and who should be enrolled in these programs.

The preparation and updating of vocational personnel is a major concern of vocational researchers. Questions need to be addressed relating to the sources of training and the type and depth of the training needed to prepare and maintain qualified personnel. Questions relating to the role of occupational experience in personnel preparation and the recruitment of skilled individuals from industry also need to be answered.

The management and financing of vocational education is a complex undertaking. There is a need to define the role and interrelationships of Federal, state, and local governments in vocational education. With existing resource limitations, priorities must be established and formulas devised to provide a basis for allocating funds at all levels of government.

The relationship between school and work is a critical one, particularly in a complex technological society. Students must be oriented and prepared to make a smooth transition from school to work. A need exists to facilitate the transition from work to school and school to work. Articulation needed between various programs and between vocational education and industry is also required. Effort is needed to determine the best approaches that may be utilized in achieving school/work transitions and articulation.

The members of the JVER Editorial Board strongly recommended that in carrying out research and development in the above areas, collaborative efforts be undertaken to bring the methodologies and the knowledge bases of the social sciences to bear on the applied field of vocational education. While the priorities for

vocational research as perceived by the Editorial Board are important, its members recognize a research agenda is only meaningful to the extent that research itself is a priority among Federal, state, and local managers and planners.

Vocational Education Research for the Eighties

Daniel H. Saks

After the research for the major N.I.E. Vocational Education Study and the more modest report of the National Commission for Employment Policy on The Federal Role in Vocational Education (to say nothing of numerous other recent efforts), one might well wonder if there is anything left for researchers to discover about the "enterprise." Some of you, not liking the current results, may say that the researchers should continue until they get it right. Since I directed one of those research efforts, and since I learned long ago from Henry David not to question his judgment, I will not take that tack. I believe we do know more than we used to. Whether we know enough is a question to which I will return.

The purpose of this Colloquium is to generate suggestions for research on Vocational Education for the Eighties. Since good research is designed to answer questions (and I know you would not have gathered to plan bad research on vocational education, since we have certainly had a surfeit of that), I would prefer to restate the theme of the Colloquium as identifying the important questions about vocational education in the eighties that research might help answer. So, I am really being asked to give my prediction about the important questions in the 1980s (a task for which I have no technical expertise and, indeed, for which my training as an economist might well make you wonder why they even let me talk). Such predictions do depend in part on predictions of the likely policy and economic environment of the 1980s and I will try to make them explicit. I will divide my remarks into a discussion of old questions to which we need better answers and new questions that are likely to have increased importance in the environment of the 1980s. I will focus in particular on these issues from the Federal perspective.

In the environment of the past decade or so, the key questions at the Federal level were whether the Federal contribution to vocational education paid off relative to other uses of those funds, and whether Federal legislative and regulatory initiatives could leverage this largely state and local system to pursue Federal objectives and, particularly, to develop better opportunities for the poor and minorities. Unfortunately, the answer* seems to be negative for both questions. The vocational education "enterprise" at the

*The research conclusions I cite depend heavily on the staff work done by the National Commission for Employment Policy and published in the Commission's report on The Federal Role in Vocational Education, (Report No. 12, September 1981) and in the forthcoming volume of Sponsored Research that accompanies that report (Special Report No. 39, November 1981).

secondary level appears to be no "starship." Vocational education should pay off in vocational outcomes; it should increase expected earnings for its students.

Although it appears that there are transitory earnings gains for women in commercial courses and men in trade and industry courses, on average over the first decade of people's careers there is no positive earnings differential for students who go through the secondary vocational system, even though such an education is more expensive than college preparatory and general education. Now this is a result that is easily misinterpreted. It does not say that the average is no better than for general and academic secondary programs, and the average is all that the Federal government buys because it has not succeeded in making its expenditures count at the margin. Despite the aggravating regulations, it is hard to show that the Federal funds have pushed the system around that much. The subsidy (much larger than commonly realized when CETA, postsecondary vouchers, and other Federal programs are included) has perhaps pushed down the private rate of return on vocational education, inducing the system to devote a larger share of its resources to activities with smaller payoffs. That suggests to me that we are putting too many resources into the secondary system as currently structured, and that is a misallocation.

If the research tells us that, then it leads us to the next question. How can such funds be used more effectively? One way, of course, is to use the money to reduce the Federal deficit. But I am more optimistic than that. I do believe that a quality vocational education system could be the centerpiece of the nation's employment and training system, but that suggests a different kind of research because it asks a question not about the average program but about the marginal program. How do we identify particular programs in particular places for particular students that should be eliminated or expanded so that the return to our vocational education expenditures is maximized?

The answer requires looking at the distribution of outcomes and examining the outliers. It also requires linking the evaluation effort with the mechanism for institutional change. Markets are one device for doing that and, indeed, people have suggested voucher schemes at the secondary level. We need to explore a variety of possibilities including vouchers, evaluation-based incentive schemes, and other mechanisms. Some experiments might be valuable on this question. We need to look at both the technical possibilities for teaching vocational skills, and we also need to understand the preferences of teachers and administrators in the system in determining what they do. This is the sort of work I have been doing for elementary schooling and the techniques could certainly be applied here.* We need to take a much more micro-oriented approach to vocational education. That requires detailed standardized measures of the learning of vocational skills and it requires more detailed data on the way time and resources get used in vocational schooling. It also requires taking a harder

*Bryon W. Brown and Daniel H. Saks. "The Micro-Economics of Schooling," Review of Research in Education, Vol. 9, 1981, David C. Berliner, Chapter 5.

look at the best locus for vocational training: public or private school, secondary or postsecondary level, classroom training or on-the-job training.

As to the question of vocational education's role in opening up more opportunities to the poor and minorities, the issue is not one of access to the system overall for those groups. Given test scores and family income, it is true that Blacks may be underrepresented in the system, but that is only another way of saying that Blacks are more likely than whites to attend college, given income and test results, and secondary vocational education is not a feeder to colleges. The real question is whether the poor and minorities have access to the best parts of the system where the return is highest and also whether vocational education might be able to play a role in dealing with the potential high school drop out so overrepresented by the urban poor and minorities. These problems will not go away with the absorption of the baby boom generation into the labor force. The Youth Entitlement Demonstrations showed us that the combination of a guaranteed job in return for attendance at an alternative school could get many drop outs to return to school. There is to my knowledge little evidence that conventional vocational secondary schools have a generally better record than other secondary schools in preventing drop out behavior, but it does seem logical that they might, and this would be a useful research and demonstration project.

Finally, on old questions. There is a tendency to focus on the Vocational Education Act and the secondary schools. But a large amount of Federal aid goes through vouchers and subsidized loans to postsecondary vocational education where the return seems to be higher than for the secondary level, but where the evidence is much sketchier. It is important to study the issue of returns to the postsecondary system and to determine whether the current needs-based voucher system is working well. It is my suspicion that those schemes have allowed postsecondary schools to engage in substantial price discrimination and increased the price to non-poor students. Whether that is true and, if so, whether it is desirable are unknown finance issues. In general, the approach to public finance issues in vocational education has been more descriptive than analytical and, as an aside, I would hope that the finance data collected under the recent N.I.E. study will receive some further analysis.

Turning now to the questions that will need to be addressed more carefully in the 1980s, we need to begin with a consideration of the likely economic environment over the rest of the decade. We can list some of the salient features with fairly high probability: The labor force will grow at half the rate that it did in the seventies mainly because the baby boom generation is now in the labor force. That was the great accomplishment of the seventies. A much larger share of that smaller growth is going to be women and the minorities. The latter did not have a baby bust in the sixties.

At the same time that growth in the labor supply is slowing, labor demand may also. The anti-inflation effort and the prospects for irresponsibly tight monetary policy and irresponsibly loose fiscal policy over the next few years mean that few expect unemployment rates to return to the level of the

late seventies until well past the middle of this decade. Deregulation and international competition (both, alas, in some danger) will mean more adjustment and job changing for experienced workers and the need for a more flexible work force. Further, capital investment incorporating new labor-saving techniques of production (robots and chips) are likely to substantially reduce the demand for traditional blue collar workers. Although manufacturing's share of the Gross National Product may not fall, the share of the work force employed in those activities may someday be no larger than the share employed in agriculture. The new technologies, if recent experience is any guide, are likely to compress job skills by eliminating some of the most and least skilled manual occupations. Finally, and I mention this because it is a product of what appears to be bad research that has been widely disseminated, there is no evidence that the share of small business in the labor market is increasing. Since some have speculated that the vocational education system tends to feed such businesses, it is perhaps bad news for the system that that potential market is not growing. On the other hand, in the one city where we looked for the special small business-vocational education linkage (see the forthcoming research volume of the National Commission for Employment Policy), we failed to find it.

What does all this suggest about the important research questions? I will mention three. First, large segments of the system are or will soon be obsolete. Which parts? And what can be done to respond to obsolete teachers and equipment? Adjustment to change is often delayed in the public sector where demand can be propped up for years. We cannot depend on market forces here; we need to have solid believable research that can drive the required resource allocations. And we need to devise better mechanisms to spread the costs of adjustment beyond the professionals in the system or the students who get shunted into dead-end programs.

Second, competition and the changing skill demand requires better predictions about future demands (a hopeless task in my opinion) and a more flexible work force. We need to analyze just what basic vocational skills are and we also need to figure out the best institutional arrangements and pedagogical techniques for getting them taught. That is how we get a flexible work force whose members will typically spend half a century in the labor force. These issues also spill over into retraining of displaced, experienced workers. I might add that one often proposed solution to the prediction problem is business involvement in planning the system. While there are good reasons for business involvement, long-term labor market prediction is not likely to be one of them. Flexible workers are the only solution to our poor ability to predict changing demands.

Third, we need to understand better how vocational education relates to the labor market and to improve thereby its operation. People can learn vocational skills in a variety of ways. We need to understand how existing and potential career paths, along with competitive training systems, can and should interact with the vocational education system. Flexible and cost-effective training systems with access by the disadvantaged to good learning opportunities should be our goals here. We must not draw the research boundaries too tightly.

Some Guidelines for a Vocational Education Research Agenda in the '80s

Jerome Moss, Jr.

Vocational education is a field of practice--not a discipline (Copa, "Research and Inquiry in Vocational Education," International Encyclopedia of Educational Research). It is a man-made solution to the continuing need for preparing individuals to perform the work required by society. Moreover, it is just one of the systems created by our society to provide employment-related education and training.

Role of Vocational Education Research

The solutions to problems in a field of practice, like medicine, law, and vocational education, involve taking action. Vocational educators seek to take the "best" action in each problem situation they face. Practitioners recognize, however, that the judgment of what is "best" involves their personal and professional values, as well as the values of the particular clients being served. Further, practitioners recognize that although similar problem situations may appear to recur, inevitable changes in the clients and the contexts involved will frequently require old solutions to be adapted to new situations if they are to remain effective.

The role of research in vocational education is to aid practitioners in solving the problems that arise from professional practice. Research should provide insights, information, and guidance that will help vocational educators, their clients, and the public take better actions--that is, improve the effectiveness and efficiency of their practice. As William Cooley put it in the "President's Column" of the April 1982 issue of the Educational Researcher:

> Some research has more immediate relevance to practice, while other research is long range in its impact on education. Some results require translation into instructional materials that schools can use. Other findings need to become part of the working knowledge of educators participating in the system's decision processes if they are to have an impact. But in all cases, the improvement of education would be facilitated by better communication between practitioners and researchers (Cooley, Educational Researcher, Vol. II, No. 4, p. 3).

Because the practice of vocational education generates a very wide variety of types of problems, research in vocational education must be able to utilize for its own purposes an equally wide variety of both knowledge and techniques drawn from the disciplines as well as other fields of practice, in order to produce results of most value to practitioners. Given the eclectic nature of the research methods needed, as well as the variety, value-oriented, and dynamic nature of the problems to be faced, vocational education researchers need not apologize for their inability to develop laws or theories (as in the disciplines), but should aim instead at creating guidelines and rules of thumb that can and will be used by practitioners.

Study Goals and Criteria

One of the urgent needs of most practitioners is for clear, internally consistent, and socially relevant program goals, together with useful criteria that will assess progress toward these goals. It is all too apparent that research in vocational education has thus far almost completely ignored systematic study of the desired outcomes of the field and their relevance to important societal values. As a result, planning has been fuzzy, evaluation results have been incomplete and ambiguous, and means have often been incompatible with ends.

Continuing to ignore the study of goals and criteria could well lead to the demise of vocational education as a socially useful tool, for the context in which vocational education functions is changing rapidly. Not only are vocational education's relationships with other education and training systems shifting, but the amount and kinds of society's needs for education and work will change as technological advances, new demographic patterns, natural resources depletion, and emerging political realities greatly alter the systems for producing and distributing goods and services. These changes will, in turn, present unprecedented challenges to and opportunities for providing employment-related education and training. To remain viable in such a complex, dynamic societal context, vocational education's purposes, characteristics and relationships with similar enterprises must be examined continuously. In other words, to remain effective--to be doing the right things--alternative desired outcomes for vocational education, for both individuals and their aggregated impacts upon society, must be explored, and the meanings of societal values (e.g., work, equality, etc.) within which vocational education goals must be achieved should be studied.

Researchers need to apply the techniques of critical science and the interpretive sciences to develop and make available to practitioners alternative sets of desired ends for vocational education, to analyze and make explicit the values embedded in those ends, to make clear how various ends would contribute to (or inhibit) other social values, and to create useful indices (criteria) that will measure the extent to which desired ends have been attained.

It is unlikely that the many publics and practitioners of vocational education will all select the same set of desired ends (values vary too much), but if the choices can be made deliberate, the chances of the field remaining viable in the larger socio-economic context will be enhanced and individual programs can be designed to operate with greater effectiveness.

Design Models of Ideal Systems

Given the availability of alternative sets of desired outcomes, a second major task for researchers is to design models of "ideal" systems of vocational education that will serve various sets of outcomes. Each model would be, in effect, a macro-level strategy (expressed in systems terms) for attaining the desired ends. Hopefully, the models will lead to new ways of thinking about vocational education--about the interrelationships among its inputs, processes, and outputs and about formulating its problems. Certainly models would provide frameworks for organizing research results. But most importantly, the models would provide practitioners with alternative strategic-level plans for viewing and for improving the effectiveness of their operating systems.

Comparative studies of different ways of providing employment-related education and training, in this country and in other developed countries, should help build an information base useful in creating the models.

Together, the development of goals and criteria and the design of models of ideal systems provide the basis for potential reform in vocational education--for making basic changes in its ends and means--to help insure that it continues to play a relevant, effective societal role in the years ahead.

An important responsiblity of the Federal leadership role is to stimulate and encourage activity of the kind that may lead to reform, and to build the research capacity for it.

Improving the Efficiency of the Systems

Research should not only maximize the probability of vocational education doing the right thing (effectiveness), but it also should lead to vocational education doing things right (efficiency). To achieve any set of desired ends and to operate any system efficiently, vocational education needs constant renewal and servicing; it needs continual infusions of new knowledge, up-to-date information, and better processes and products to improve the cost effectiveness.

There are at least two ways of thinking about how research can help increase the efficiency of vocational education, and both ways should probably be utilized. Both typically utilize

the research methods of logical empiricism.

One way is to select an appropriate model of an "ideal" system, then ask what one needs to know or to develop to make it work, find out what is already known or available, and, finally, build a program of research around the unanswered questions. Research motivated in this manner would have direction, consistency, and interrelatedness. It would provide the means for improving the realism of the model and for increasing the model's potential usefulness to practitioners. The generalizability of the research results would lie in their contribution to the further development of the model. The ultimate utility of the research effort, however, would depend upon the extent to which the model itself is used by practitioners.

The second way of helping practitioners increase the efficiency of programs is to study their most persistent, common, actual problems. This is, of course, the traditional way of selecting and categorizing research problems. Its principal advantage is dealing directly with actual problems. Generalizability of results depends upon the commonality of the problems and the similarity of the contexts in which the results will be used. When utilizing this way of selecting problems, however, research tends to become susceptible to fads, and to be less programmatic. Of course, if this way is used without having clearly stated program goals in mind, the research could lead to doing the wrong things more efficiently!

Both of these ways of directing research to increase the efficiency of vocational education will undoubtedly yield many more problems than our human or financial resources can accommodate. It therefore seems appropriate to close this presentation with two final reminders: First, it is more important to be doing the right things than to do the wrong thing efficiently. Second, when the number of problems leading to potential increases in efficiency exceed our resources, it is far better to support the most creative proposals than to worry about prioritizing the problems.

Research Directions for Vocational Education: A Researcher's Perspective

Ruth Pierce Hughes

Research in vocational education is all too often determined by who has the money and what they want to know, by the legislative priorities for program content (especially Federal), and to some extent by whatever is "in" at the moment. Over the last ten or so years we have had hundreds of competency or task lists identified, and subsequently competency-based curricula developed and field tested. We have what should be more than enough follow up studies of vocational program graduates, of sex bias and stereotyping, and of various aspects of program evaluation.

Some of that work has been excellent, and has determined direction for others. For vocational teacher education, the work of Cotrell (1972) laid the foundation for much of the later work in performance-based instruction. For example, along with previous work in home economics education it was used in identifying competencies for home economics educators (AHEA, 1974). But, whereas Cotrell's work was appropriately considered research, we never considered our project to be research. Those activities were development, obviously of importance to our field, but not to be misrepresented as new knowledge.

Follow-up studies range from well planned and well executed research to surveys from which results are of little help in planning programs or courses. Illustrative of well planned follow-up studies are the national surveys, but their usefulness for vocational education is limited. For example, the National Longitudinal Study begun in 1972 has program and course data but they are difficult to use. Transcripts collected in connection with the National Longitudinal Study of Labor Market Experience may provide more usable data. In fact, it may be the only study from which consumer and homemaking students can be identified.

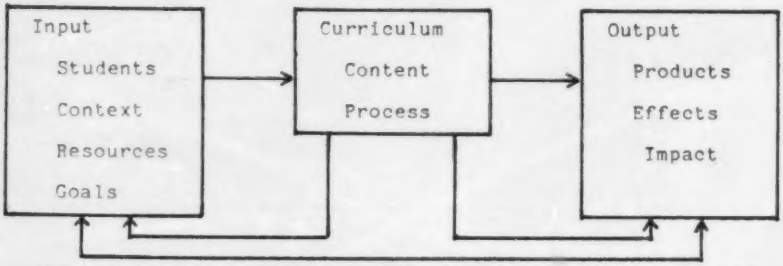
Yet those studies can provide useful data. At the other extreme are the plethora of surveys sent out by vocational educators for whatever reason. Some which crossed my desk as editor of Journal of Vocational Education Research included needs assessments from teachers on elimination of sex role stereotyping, on understanding the needs of the handicapped, and how they preferred to learn about youth organizations. Aspects of all three are reasonable areas for research, but the approaches generated no new knowledge.

Similarly, evaluation studies are profuse and of uneven quality. But high quality and degree of usefulness notwithstanding, evaluation studies have used a disproportionate share of resources for research in vocational education. There are other lines of inquiry that are more promising, more

defensible as research, and address serious concerns.

As one way to look at research in vocational education, I adapted a framework which Darcy proposed (1979, p.10). His framework was a production function as it might be used for evaluation. Embedded in Darcy's model and its adaptation are the four elements of the CIPP model (Stufflebeam, 1971), but not used necessarily as proposed for evaluation. Just as elements of the education production function may be seen as appropriate for evaluation, so may they be seen as elements for research.

A Production Function Framework for Research



Adapted from Darcy, 1979, p. 10; Stufflebeam, 1971, p. 346.

According to this model, recent research has emphasized output and curriculum content, but only selected aspects. I should like now to review possibilities in other dimensions, as well as to suggest alternative directions for curriculum content and output. First, the input into vocational education.

Input

Students

Vocational educators have looked at expressed needs of students, have related SES and IQ to performance, and on and on. But efforts to delve deeply into student characteristics have been limited. In the old days, agriculture and home economics teachers knew students in their family setting. They knew what parents expected, what occupations the students expected to enter, and something of the pressures the students had at home. Teachers used that information in working with the students, both individually and in classes.

How can we use today's more sophisticated techniques of data collection to get comparable information? Students are less accessible; parents may or may not be supportive of their

children (or may not know how to be); some teachers have contract provisions which preclude visits to homes, and rapidly expanding technology is providing career opportunities that defy our traditional taxonomic categories and course offerings. How do we fit together student interest and ability, family and community environment, educational patterns, and work environment in order to provide the best possible skills for employment?

Context

The context in which and for which vocational education functions is receiving increased attention. Conventional wisdom always has suggested that satisfaction from life at home, at school, and at work are interrelated, very likely interdependent. Job satisfaction inventories are not new, but until recently the job tasks themselves were the independent variables. For example, in an early study of programs in home economics occupations, researchers assessed students' attitudes toward work in general and toward the specific jobs for which they were prepared (Nelson and Jacoby, 1967). Those data were entered into correlations and regressions, but that approach provided only minimal information to relate the educational program to the work environment. Recently, more rigorous approaches have been suggested, often for all of education, but also for vocational education.

A paper by Davis and Lofquist (1981) provides a fine starting point. A key thrust of their paper is that "Vocational training programs can and should be geared to promote a likelihood that competent workers will also be satisfied with their jobs" (p. vii). They provide many suggestions, of which one is study of reinforcer systems. That is, determine the reinforcer at the work site for a specific job and then simulate it at the training site. They also suggest how this might be made operational (pp. 13-21).

Another context deserving attention is the relationship between home and work. Some years ago, Scruggs and others (1968) studied the interrelationship of home environment and employment. Results were not definite, but they were tantalizing. For the sample of industrial workers and their families they studied, tentative findings suggested positive relationships between employment status, knowledge of child development, and goals for job advancement and children's education. However, funding for that line of inquiry was not continued, and only recently has attention again been given to families and work, but not by researchers in vocational education.

Illustrative of the interest of the popular press is the Better Homes and Gardens survey of a sample of subscribers' responses to a questionnaire, "How Is Work Affecting America's Families?" The 1981 survey addressed attitudes toward work and jobs, the perceived effect of work on family life, and attitudes toward being a full-time homemaker. The last dimension might appear more relevant to home economics, but I believe all are relevant not only to home economics but also to vocational education generally. Although most of these 2,000 middle class respondents were happy both at home and work, 64 percent of them

said that at times work or career pressures created serious strains on their marriage (p. 25). But that is only part of the question. What kinds of pressures? And what of the other side of the coin? The effect of family on work?

Study of this question is increasing; interestingly, it seems to be coming from management and from workers at the upper economic levels. One such study by the Catalyst Career and Family Center surveyed almost 400 selected major corporations and 815 couples with the wife's career in business (Catalyst 1982). A particular concern was corporate direction for the future given the increasing importance of two career families. The executives were asked what they were doing to alleviate problems of two-career families and whether productivity was affected by problems of families. It appears that corporate officials are aware of problems but their attitudes and policies differ. To illustrate: Monetary support for child care facilities was favored by 54 percent of the corporate respondents but provided by 19 percent. Child care was also a concern of husbands and wives, as was communication with each other. These and other findings give direction to Catalyst; among their projected projects is "Helping to make students aware of the realities of the workplace and stimulating them to plan concurrently for their career and family goals" (Catalyst, 1982, p. 10).

There are other studies, such as Crouter's, of effects of participatory management (1982). However, except for an occasional study of college faculty (for example, Schultz 1977), studies of the interrelationship of home, work place, and school are not yet found in vocational research literature.

Resources

Resources put into vocational education are many. Since the recent NIE study (1981) dealt extensively with funding, I will emphasize research needed on vocational teachers: preparation at undergraduate and graduate level, personal characteristics and experiences as they relate to performance and assessment of teaching behaviors.

Because many teacher educators are researchers, data on teachers are relatively plentiful. Papers in the Journal of Vocational Education Research are illustrative. Peters and Moore (1982) compared instructional methods in an undergraduate class in agricultural education and Clayton (1981) compared methods of preparing Future Homemakers of America (FHA) advisors in home economics education. Others looked at aspects of sex equity; for example in the Winter 1981 issue there were two papers, one by Thomas and Hogeland, the other by Morgan and Stewart. Fewer studies on teacher performance were reported, among them an assessment of the performance of home economics teachers, first as student teachers then as first year teachers (Fanslow, Caputo, and Hughes, 1979).

We need more studies like Fanslow, et al. and we need them over a longer period of time. The study included observations of actual performance of teachers rather than perceptions of what competencies they do or do not need or what their attitudes are toward equity, handicaps, or whatever is the current topic.

Reasons for more studies of performance are many: They hold promise for relating teacher behavior to student accomplishment and they make possible documentation of teacher reactions to class and school differences. Perhaps of most importance is following a teacher's progress. Klein (1971) notes the need for such follow-up in order to help teachers retain what we worked so hard to instill. Copeland's (1979) data show loss of skills (such as use of probing questions) when a student teacher enters a class or school where the method is either unknown or poorly received. For vocational teachers, I would add verification of technical updating as a part of the assessment.

Goals

None of the input items is independent of the others, especially goals. Given recent controversy over the purposes of vocational education, attention directed toward goals, especially for secondary students, might be enlightening. The recent study by The National Center for Research in Vocational Education (Campbell, et al. 1981) provides evidence that vocational education serves substantial numbers of students who do not necessarily proceed directly to paid employment at a related job. Some of us who have been in education for many years have no problem with this; we have long believed that aspects of vocational education are useful for all--or nearly all--students. Support for this was found in a survey of attitudes of the general public toward education in Iowa. Substantial percentages of the random sample of 760 respondents attached importance to teaching skills for family living (76 percent), to respect and getting along with people with whom they work and live (89 percent), to develop skills to enter a specific field of work (79 percent), and to be good managers of resources (83 percent) (Warren and Lagomarcino, 1981, pp. 30-33). Other studies, both local and national, address the same questions, but not always in a survey wherein choices include the variety of goals for public schools. Could we not synthesize the many good surveys which include goals of public education?

An excellent starting place would be the 1982 yearbook of the National Society for the Study of Education. Chapters by Swanson, Datta, Berryman, and Silberman would be especially useful for goals as well as for curriculum concerns. Consensus will not easily be achieved. However, the time to make explicit some of the implicit goals of vocational education is now. Further, although lines of service areas are blurring, each has responsibility for some aspect of those goals. When we have this, we can approach instructional programs with confidence.

Curriculum

Content

With respect to what is taught, vocational education faces the same concerns as all of education. Of particular relevance for us are the new and emerging jobs and changing technology. The two are often interdependent, but for discussion purposes, I

will separate them.

Health areas have expanded rapidly, but none more than direct services to patients. Frequently, these cut across vocational service areas, presenting two problems for the curriculum developer: what to include in preparation for an emerging occupation and where to locate it. Our present categories are useful but they tend to create "turfsmanship." For example, one position (or group of positions) requires a unique set of skills: employees in the sharply increasing numbers of homes for patients who have been institutionalized but are now ready for a group home. There are jobs for persons with home economics, health care, and building maintenance skills. How do we enter this market? How do we train persons for the jobs? How do we take political action to assure decent pay for the workers?

Another whole set of occupations will emerge from a development which is still in the experimental stage. In a recent issue of Discover, Grady (1982) describes use of computers to program electrical impulses to restore movement to paralyzed limbs. Granting the humanitarian aspects, it is difficult to imagine the job opportunities this will provide, but it is not too early to develop a way to study and teach, so that students will be ready for the jobs?

Other horizons involve our association with groups long a part of industry but not associated closely with vocational education. A case in point is the apparel industry. Manufacturing provides 25 percent of the national income. Of manufacturing, apparel and other textile products are 3 percent; by comparison, motor vehicles are 6 percent (Bureau of the Census, 1981, p. 426). Yet we have no strong ties with the trade group, the Apparel Manufacturers Association, which does have an education committee. We are just beginning to work with the Home Sewing Association, another industry group interested in construction of garments by custom sewing methods. This alliance will grow, but contacts with the sewn products industry are just beginning. We had one contact because of a small research project which was written up for a trade journal, Bobbin (Rice and Spencer, 1982). Future possibilities include not only planning instructional programs cooperatively but also research in cooperation with manufacturers.

Process

Since the late 1960s, both Federal and state agencies have funded many curriculum projects; in my opinion, too many of the wrong kind. We've had curricula about curriculum in vocational education and, in the service areas, major projects. In home economics alone, there have been three major national efforts since about 1970 and untold numbers in the states. Yet rarely do projects address the critical issues related to how students learn, retain, and use information.

Hultgren and Shear (1981) provide a rationale for moving beyond the technical efficiency model in vocational education. They note that "vocational education tends to be limited to prescriptive, technical procedures . . . problems in daily life

are not amendable to prescription . . . [but] call for action based upon judgment about what ought to be done" (p. 7). They then call upon vocational educators to provide not only practice in skill development but in judgment. Procedures could be based on Klausmeier's (1982) work. For some years he and his colleagues have been developing and testing procedures for improving cognitive learning and development. Klausmeier's procedure for carrying out research on cognitive learning is encouraging. The objective is educational improvement in local schools, using researchers as stimulators and consultants, and local teachers as innovators and developers. Given the traditionally close relationships among the various groups in vocational education, the idea is feasible, if teachers are given time. The problem is getting vocational educators to turn attention from hundreds of competency lists and highly structured curricula to approaches which center on providing students with cognitive skills that they can use for a lifetime. Can we not direct more of our resources to developing such approaches?

Given the best of both worlds, content and process could be in the same project. However, use of the Klausmeier model would mean very different activities by project personnel. They would identify content, suggest instructional strategies for helping students develop higher order cognitive skills, and suggest evaluation procedures, all of which require extensive inservice activities. These activities would not develop the familiar curriculum modules or guides we now have. But in our search for emerging occupations, can we not turn also to a search for better methods?

Output

The possible range of outcomes of the total vocational education enterprise is a complex problem which lies outside the scope of this paper. Consideration of the elements in the model--products, effects, and impact--could be limited to the goals identified. Inasmuch as goals themselves are not clear, one can look at them in relationship to the other inputs: students, context, and resources, as they affect students in the various curricula.

The traditional view is that the product of vocational education is students prepared for and employed in a particular occupation, whether paid or unpaid. Data on their employment are collected at the local level, then aggregated at state and national levels. Employment data are also obtained from other surveys, of which the NLS Class of 72 is illustrative (NCES, 1972).

Vocational programs have other effects upon students and impacts upon school and community groups and organizations. Directions for future research might include different and better ways of studying outputs.

Products

Certainly we will continue to monitor our product; that is, to follow those students of whatever age who enter programs for employment preparation. But are we asking the right questions and at the right time? Given the importance of employment and given related factors, other questions might be asked.

Labor market transitions account for a portion of youth joblessness (Congressional Budget Office, 1982, p. 23). Have we used expanded contacts with business and industry in helping students locate jobs? Has the influence of home and work on each other been related to student interest and aptitude? Have work experiences during the training program been realistic enough that career choices are valid? Such questions are best formulated and asked at the local level. In fact, researchers consider local data to be the most accurate and realiable (Dunham, 1980, p. 7). Nothing prevents the inclusion of a common set of questions across a state or among states. Carefully collected and recorded responses could be valuable not only for planning and policy, but for comparison with national survey results.

Use of NLS Class of 72 or similar data to obtain information on vocational students is a case in point. Meyer (1981) used the data to construct estimates of earnings for students who had had different amounts of vocational education, a reasonable exercise. But review of the data tapes revealed problems which raised questions of validity for any but the most gross estimates. For example, records of number of high school courses taken over a three year period ranged from zero to as many as 74. But even though some uses of national survey data are questionable, tapes are available for a variety of analyses. In addition, they suggest directions for complementary local studies.

Effects

One direction for investigations of effects is suggested by the recent study of patterns of participation in vocational education (Campbell, et al. 1981). If 78 percent of secondary students enroll in some vocational education, what is its particular usefulness to the 49 percent who took a limited amount, compared to the 29 percent who concentrated on a vocational area? Compared to the 22 percent who took no vocational education? What are the policy implications of such findings?

And where is consumer and homemaking education in all of this? National data will be available from transcripts of the New Youth Cohort Survey, (Borus, et al. 1979), but may be difficult to interpret. Some effects to look for will be suggested by demographic questions on the survey form: age, sex, SES, employment status, marital status. How do those with larger amounts of consumer and homemaking education differ from those with none or little in their perception of its usefulness to them after school (or after adult classes)? Do they know more about managing a home? Do they use this information? Are they better or less well able to keep a job?

Again, the promising questions go back to the environments at home, work, and school, and to the interaction of environments and personal characteristics. Other questions, more appropriately considered questions of impact, are more interesting and, perhaps, more controversial.

Impact

Suggested research on the impact of vocational education will be limited to consumer and homemaking education, an area of vocational education frequently not included in the studies described above. One aspect will be its potential economic impact; the other will be directions for evaluation of other impacts.

Consumer and homemaking education can add to income through use of the skills of homemaking in the market, especially for the entrepreneur. At the start, these activities can begin with little capital, often in one's own home as child care provider, custom sewer, or caterer. The study of entrepreneurship and its successful use in home economics has been reported by Fanslow (1981). The research question is the economic contribution of the entrepreneurship effort, which addresses use of skills for sale. There is also the question of determining the economic value of these skills when used in the home.

The methods ordinarily used for calculating the value of household work are opportunity cost and replacement cost. Neither is completely satisfactory, in part because quality of the work is so difficult to include. Another approach under study is the notion of value added. Using the USDA 1976-77 Household Food Consumption Survey, the researchers compared food costs for purchased meals with cost of food used at home (Bivens, Volker, and Ulrichson, 1982). To put it too simply, the difference is value added. Among possible comparisons are differences in value added in families where the homemaker is employed compared with not employed or with difference in quality of diet with more (or less) value added. The methodology and data demands are complex, but could yield data on the economic value of consumer and homemaking education.

Another impact area is the relation of home environment to the work place. Again, the research would be complex, but given the importance to our society of work and of family, it would be worth pursuing, as the earlier discussion of this theme in the "Input" section indicated.

Impact of programs and courses on behaviors of students is the final research area to be suggested. We need to know not only what students learned but also their attitudes toward the content and their use of it. Among the few studies that go beyond knowledge and attitude is the recent study by Mokros (1981), who evaluated parent education by assessing students' knowledge and perceptions of their ability to interact with children. Behavior was assessed by simulation, a reasonable approach if the sample is large. McClelland and Hughes (1982) interviewed past students of parent education and observed them with their children. Use of their procedures might be combined with simulation in order to secure information from many

individuals. However, at the local level especially, direct observations are desirable.

With respect to parent education and its impact, a sharply critical paper by Clarke-Stewart (1981) is instructive. Although we may not agree that there is no empirical base for offering the instruction, as she claims, we should be attentive to her cogent suggestions for systematic evaluation of the programs themselves and of the subsequent behaviors of the participants. Similarly, we can look at outputs of other consumer and homemaking content areas, especially those considered critical, such as, consumer education, nutrition and housing.

Summary

A production function model was suggested for identifying research directions for vocational education. As input, research was proposed on students, context, resources, and goals. Content and process of curriculum were included, with emphasis on emerging occupations and learning strategies. As output, products, effects, and impact were noted, suggestions for impact research were limited to consumer and homemaking education.

Research directions suggested for vocational education generally are the following.

Input

- the relation and interrelations of student interest and ability, family and community, education patterns, and work environment to acquisition and use of skills for employment.
- effects of family on work and work on family, finding ways to help students plan for both.
- teacher performance over time.
- understanding of and agreement on goals of vocational education.

Curriculum

- preparation for emerging jobs.
- cooperation with industry.
- emphasis on development of human potential, including especially thinking and judgment.

Output

- use of data from national surveys to address questions of policy; development of complementary local studies.

- effects of differing amounts of kinds of consumer and homemaking education.

- economic and societal value of consumer and homemaking education.

Of the above directions, the most critical are those which directly affect development of the potential of students. To that end, we especially need research on work, school, and family; on teacher preparation and performance over time; and on teaching for development of higher-order cognitive skills.

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Vocational Education Research for the 1980s: Discussion Paper

Gordon I. Swanson

In the decade of the 1970s, Federal allocations to vocational education constituted a declining proportion of total Federal allocations to all forms of employment-related education and training programs. The magnitude of state and local allocations to vocational education is more difficult to gauge, since they are now reported as a pooled allocation, and they continue to create the illusion that they are rising because they are, indeed, a growing proportion of total allocations. State and local allocations to vocational education as a proportion of all forms of employment preparation at state and local levels is likely to be in a modest to sharp decline in the future.

The picture of general education research and research policy which emerged from the 1970s is clearer. The record of the 1970s has shown that:

1. The 21 R and D Centers and the 20 Regional Laboratories which existed at the start of the decade are, most of them, historical episodes. The "center" concept has not demonstrated the vitality or the utility which was expected early in the decade.

2. Programs of educational R & D are not improved by regarding them as structural problems requiring frequent attention to organization and reorganization. Frequent rearrangement of the boxes on organizational charts and constantly changing the cast of actors "in charge" may be the best evidence of a policy vacuum.

3. Educational R & D is best described as a collection of "side bettors" looking for the place where the next game will begin. No durable constituency has emerged for educational R & D.

What can be said about the lessons learned from vocational education research in the 1970s? What is seen by those who would offer a detached view would certainly include the following:

1. The prior claims on R & D funding such as VEDS, NOICC, and similar activities at the Federal level together with the numerous follow-up studies at state levels are essentially social bookkeeping; they are not research, and they are of very limited service. They should not draw upon limited research resources.

2. Knowledge generation in mission-oriented agencies has been preoccupied with attention to educational

inputs, much of it identified with legislated educational methodology. Many contracts can be viewed, for example, as the effort to demonstrate the efficacy of, or the bureaucracies' compliance with, the treatment elements of legislated experiments (e.g., individual educational plans, cooperative education, bilingual education, and a myriad of predetermined outcomes expected from funding formulae). This preoccupation with inputs is also seen in the extent to which the field is heavily loaded toward activities related to curriculum.

3. The continued reaffirmation of a commitment to a "short-range" view of vocational education, as well as research in vocational education. This may be a response to frequent Congressional injunctions and specifications throughout the decade, beginning with the famous Mansfield Amendment to the Military Authorization Bill (Congressional Record, 20 November 1970, pp. 518646).

While the record of the 1970s is available to view, the programs of the 1980s are still available to be modified, improved, and adjusted. A place to start would be the sets of objectives about which there is already a wide measure of agreement. These have been identified by Alice Rivilin in her Gaither Lectures (Rivilin, 1970, p. 48).

The first is improvement in the ability to deal with the symbolism and the abstractions of literacy--reading, communicating, manipulating numbers, and handling scientific, mechanical, and technological concepts. Much of the testing movement has focused on this set of objectives, but the results of the testing are rarely used for analytical or policy purposes--to compare the effectiveness of different programs or schools, or to determine the extent to which this first set of objectives may be achieved simultaneously with the next two.

A second set of objectives may be regarded collectively as the "ability to cope." Most citizens as well as educators agree that it is important for education to develop self-direction, self-confidence, leadership, pride in workmanship, and the ability to deal with new and changing situations. This set of objectives is central to vocational youth organizations.

A third set of objectives has to do with job skills and future income. There is general agreement that a good education prepares individuals for a good job or for the subsequent education or training which leads to one. Surprisingly little effort is given to any analysis of whether this is, in fact, true or to study of the conditions under which it occurs.

Obtaining agreement with the three sets of objectives has never been a problem of American education. Problems arise, however, when it becomes necessary to attach weights to the several objectives in order to allocate scarce resources among them. Does each objective deserve the same amount and intensity of instruction? Are the objectives equally suitable to all of compulsory education? Which type of objective is influenced more

by inquiry, by policy, or by the conventions of the institutional structure?

There is no question about the extent to which the American educational enterprise gives uneven attention to the three objectives and, in fact, engages in the tracking of students based on relative attention to the three sets of objectives described above. Subject segregation is, in fact, a convention of the system in which the system is assumed to be neutral and only available to accommodate the natural segregation of students based on subject matter preference or life style (Fetters, 1975 and idem, 1976). Not generally acknowledged, or even subjected to inquiry, are the effects of educational organization, instructional methods, or the "minimum performance" orientation of many vocational training programs.

If the record of the 1970s is not cheerful, it is at least cheering to observe that this Colloquium will address vocational education research for the 1980s. The remainder of the comments in this paper will have such a focus. I will place them within the categories and terms of reference, namely:

1) national, state, and local problems and policies;

2) user needs; and

3) interests and priorities of individual and insitutional performers.

I begin with two premises: first, that, for the purposes of inquiry, the definition of vocational education should embrace every aspect of employment-related education and training. It should include informal as well as formal training and it should include any activity which sustains, improves, or modifies the occupational system in relation to individual or collective goals. Second, that inquiry will continue to draw most of its resources from government levies and that inquiry, like education itself, will be seen as an exercise in redistributive democracy. For each of the categories, I will identify two programmatic emphases and I shall try to avoid their being seen as mere project activities.

National, State, and Local Problems and Policies

For the 1980s and beyond, it would be most desirable if the entire field of employment-related education and training were given the same scrutiny as was demonstrated in 1965 by the National Academy of Sciences panel in Basic Research and National Goals, done at the request of the House Committee on Science and Astronautics. It was an important step in providing inquiry advice to Congress and to the public. The panel was to address two questions:

1. What level of Federal support is needed to maintain for the United States a position of leadership through basic research in the advancement of science

and technology and their economic, cultural, and military applications?

2. What judgment can be reached on the balance of support now being given by the Federal government to various fields of scientific endeavor, and on the adjustments that should be considered, either within existing levels of overall support or under conditions of increased or decreased overall support?

The panel, it should be recalled, did not give a unified report based on group concensus. It gave a collection of independent and supporting papers to clarify strategy, policy, and value questions.

A similar exercise with parallel (almost paraphrased) terms of reference for vocational education research for the 1980s would launch a renewed framework for thinking about the role and the contribution of inquiry. It would, inter alia, require a rethinking of the relationship between ends and means and it would invite connections between knowledge and policy for interpreting and understanding the field.

A second suggested approach, also within the framework of national, state, and local problems and policies, is also taken from Alice Rivilin's, Systematic Thinking for Social Action. It holds that the Federal government should take the lead in organizing, funding, and evaluating large scale experiments with various ways of delivering vocational education and related services. Examples of such experiments have been the New Jersey Graduated Work Incentive Experiment (generally called the Negative Income Tax Experiment) and the Follow Through Program, which compared various approaches to early childhood education.

The important feature is that it would be a systematic effort to try new methods in various places, under various conditions, with sufficient controls, and on a large enough scale to permit the entire setting to have an instructive outcome. "Systematic" experimentation to complement the present "random" experimentation would necessarily involve users in ways which they have never previously been involved.

User Needs

In the category of user needs, my programmatic preferences exist along the lines of redefining the concept of "user." Certainly bureaucratic agencies, schools, and instructors can be regarded as users. But are there categories of users which are still undefined?

A way of identifying new perceptions of users, and the policy implications of the concept of use, is to examine the nature of market forces influencing any enterprise. Observe, for example, the extent of the rise in health care costs by the simple exercise of putting funds in the hands of the poor without

changing the nature of the delivery system. The growing popularity of the concept of educational vouchers, educational tax credits, and student loans may be an educational counterpart to the rising health care costs and a redefinition of the concept of user.

In vocational education the influence of market forces on sex equity, instructor quality, incentives to engage in education or training, and on related phenomena is an unexamined program feature. The research of the Department of Labor during the 1960s was a beginning effort, as it examined the labor market, its special characteristics and its imperfections. It is likely to be an illuminating area of inquiry for vocational education in the 1980s and beyond.

Also within the framework of user needs is a program focus for identifying and analyzing the extent of job preparation and updating which occurs outside of the formal system. Such an analysis would, in turn, identify users of job preparation and potential users of vocational education inquiry. Presently there is no way of estimating the magnitude of such informal and/or non-formal training activity. Some may occur in familiar training sites and some may occur in voluntary organizations. It would be useful and instructive for planners as well as users of new knowledge about vocational education to be aware of the existence of this "shadow" training activity and the conditions under which it exists.

Interests and Priorities of Individual and Institutional Performers

Programmatic research which responds to the interests and priorities of individual and institutional performers should be independent of as well as integrated with the specific missions of operating agencies. This independence allows research attention to new problems and different target groups. By legislative mandate, operating agencies deal largely with the poor, the disadvantaged, and the underserved. They become the subjects for research as well as for training. Similarly, the poor, the disadvantaged, and the underserved become the patients in public health clinics, in teaching hospitals, and for the bulk of medical research. There is, quite obviously, an ethical question of whether a segment of the population should become the clinical material for either medical or training research. Independence from the necessity to concentrate on the target groups identified by legislative mandates is, therefore, important to individual and institutional performers.

Finally, it is important for individual and institutional performers to rely on research programming which invites field initiated projects, recognizes the value of serendipity, and values the merits of a widely decentralized research function serving the field. The concentration of R & D in centers or in bureaucracies tends to diminish the important role of problem definition and problem finding, an essential aspect of lively and effective research activity.

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PART V

Themes in the Colloquium Papers

A Summing Up

Henry David

The title chosen for this brief delineation of the distinguishing features of the papers prepared for the Colloquium is designed to make it clear that there are several justifiable ways of performing this task. It is "A" and not "The Summing Up" of the themes and variations that can be heard in the twenty-odd presentations made in the course of a day and one-half. It is, moreover, a personal, and not a collegial, perception and identification of the major suggestions made in the papers for constructing an agenda for vocational educational research and development for the remaining years of the 1980s. It does not, it should be emphasized, attempt to summarize each of the papers.

It seeks, instead, to identify in the numerous, diverse recommendations for research and development programs and projects the key reference points or considerations for informing R & D planning and resource allocation decisions. It does this by establishing half a dozen broad headings under which, without doing violence to their substance, the variety of R & D needs, programs, projects, and methodologies discussed in the papers could be arrayed. Each of these headings, it must be understood, overlaps with others, even though it stands as a separate item in a six-fold taxonomy. Those who are troubled by the failure of this taxonomy to be all-inclusive, may, of course resort to the device of adding a seventh "Non-Elsewhere Classified" (n.e.c.), under which the entries that do not fit under any of the six proposed may be placed!

Before I specify the patterning of critical R & D features that I derived from the papers, it is useful to reiterate that there is a warrant for finding others. Thus, one could reasonably conclude that a high proportion of the papers essentially argue a case for assuring an adequate resource base for conducting R & D activities on all three levels of government--Federal, state, and local--that would serve (1) to enhance the quality of vocational education programs for all categories of students, (2) to demonstrate the effectiveness of those programs in benefitting their participants, and (3) to show, therefore, that expenditures on vocational education programs are fully justified. This could be a framework for another and different "summing up."

The Six-Fold Taxonomy

The six headings under which I believe almost all of the suggestions made for R & D activities in the 1980s may be distributed are:

1. Change
2. Students
3. Educational Processes
4. Resources for R & D and Their Allocation
5. Getting a Better Handle on the Future
6. Information and Knowledge for Policy Making

These should not be thought of as the labels for R & D program areas. They should be taken to be shorthand terms for sets of considerations that, as I have said, should inform decisions on the planning for R & D activities and on the allocation of resources for their conduct. In saying that they "should inform," I mean that they should enter into systemmatic thinking about the formulation of R & D program areas--and not merely about individual R & D projects. In so doing, they would play an influential, but not an exclusive, role in defining both the purpose of R & D activities and the uses of their results. By "inform," I also mean to suggest that they can serve as criteria in assessing the operational outcomes of R & D program planning and resource allocation decisions.

The brief discussion of each of these shorthand terms that follows indicates the set of considerations each represents and also the ways in which they interrelate and, as has been noted, overlap.

Change. A pervasive theme in the Colloquium papers is the need to focus research on the changes occurring in the larger societal and economic environments within which the vocational education enterprise operates. Change is a distinguishing feature of the nation's economic life--in the level of activity and its structural characteristics, and in the organization and management of economic enterprises. Changes in technology are said to be taking place at an ever increasing pace, with consequent major effects upon work force requirements and the knowledge and skills that workers must acquire and develop.

It is commonplace to speak of the revolution taking place--or about to take place--in almost all aspects of the society's life as a result of the new information and communication technologies. Recent development in automation and the roles of computers and robots in production processes are said to herald a new industrial revolution. The nation's population and the composition of its labor force are changing, as are the aspirations, value-systems, and behavior of its people. Change also marks the nation's economic and social, including educational, policies, as well as its foreign policies

that also affect its economic and social life. The nation's resources available for and expended on education, including vocational education, have also been experiencing significant changes. (It is not surprising that Colloquium participants, in the light of reductions in funding levels for R & D, asked: "How are we to learn to do more with less?")

Implied by many of the papers is the notion that the vocational education enterprise is neither as well attuned nor as responsive as it should be to the dynamic forces at work by the nation. They suggest that the local character of the enterprise, the very nature of educational institutions, and inadequate resources create resistances to or lead to lags in adapting to social, economic, and demographic changes. As a result, it is difficult for vocational schools and educators to effect improvements in the quality of vocational education programs.

The solution to this situation is to pursue systematically designed research programs on the sources of change and its consequences for vocational education and also on improving methods for anticipating future changes in key factors affecting the enterprise and for estimating the results of such changes. The papers generally assume that the outcomes of such inquiries could be fruitfully applied to a variety of purposes: to improve vocational education planning activities, both short- and long-range; to rationalize and hasten program modifications; to stimulate and sharpen curriculum improvement and revision; to provide a basis for more informed decisions on the allocation of resources; and to shape programs of teacher education and training and of personnel development. In particular, the importance of having and using better knowledge about occupational and labor force changes, labor demand and supply relationship, and the operations of labor markets was stressed.

In short, the papers by and large reaffirmed a critical function for R & D in improving the quality of vocational education by focusing on the factors of and the problems engendered by change, without, however, being naive about the many unresolved problems of assuring the effective utilization of the results of inquiry.

Students. A less pervasive theme voiced in the papers is found in the R & D activities proposed that may be described as being student-oriented in one or more of three ways. These recommendations register in part the view that R & D programs should be designed primarily to produce knowledge that would benefit learners. In part, they are also seen as essential for demonstrating the contributions made by vocational education not only to the subsequent work life of students as individuals but also to the economic life and the security of the nation.

One category of the recommended R & D activities calls for providing more information than is now available about the different needs and characteristics of the variety of students enrolled in vocational education programs and about the duration and intensity of their courses of study, as well as about their subsequent transition from school to work. The assumption is that information of this kind is essential for making sound decisions relating to both the means for effecting program improvement and the better understanding of student performance

as of vocational programming. A second category of R & D proposals is concerned with the problem of assuring up to date program offering, curricula and related instructional materials, and machines and tools. These implicitly recognize the real danger that students may be taught obsolete occupational knowledge and skills, a criticism long made of certain vocational education programs.

A third category of student-oriented R & D efforts recommended in Colloquium papers consists of those designed to expand and improve what is known about the effects of participating in vocational education programs upon learners. Such proposed inquiries seek better knowledge about both the economic effects--measured by subsequent experience in the labor market with employment and unemployment, with rates of pay and levels of earnings over time, and with occupational status and mobility--and with noneconomic effects, including further education, work attitudes, and occupational and job satisfaction.

This class of recommendations reflects the grave dissatisfaction felt in the vocational education community with the fact that so little, relatively, is known about what difference the experience with vocational education and training makes in the subsequent lives of individuals. For a variety of reasons, knowledge on this score is at best partial, generally uncertain, frequently conflicting, and, consequently, a matter of debate.

The vocational education community, especially at the secondary school level, on which most of the evaluative research on effects has been conducted, understandably feels vulnerable on the score that the claims made that measurable benefits are conferred upon students are not supported by compelling evidence. Consequently, further research of high quality on effects, particularly that use longitudinal survey data, is given in several Colloquium papers, a sense of urgency and high priority.

Educational Processes. Related to student-oriented R & D are recommendations made for studies of educational processes and for additional emphasis on developing improved instructional instruments, including curricula, and teaching techniques. These reflect several different sources of concern. One is that much remains to be learned about how effective teaching and learning can be assured with special categories of students, such as the disadvantaged, the handicapped, and those not proficient in English. Another is that little, if any, investment is being made in the field of learning theory that is being applied to vocational education. A third is that a knowledge base for reducing dropout rates is lacking, even though claims are made that vocational education programs do have this effect. A fourth is that teachers lack the knowledge and skill to fulfill newer purposes with which the vocational education enterprise is charged, such as reducing sex stereotyping of occupational programs and compensating through remediation techniques for student deficiencies in basic skills.

It should be added that a greater interest was exhibited during Colloquium discussions than in the prepared papers in

conducting studies relating to questions bearing on educational processes, ranging from more conventional concerns with curriculum improvements to learning about possible differences in instructional practices for different age groups to ways of achieving better articulation between secondary and postsecondary vocational education programs and between school-based and other modes of acquiring occupational knowledge and skills.

The point could have been made in the prepared papers, that past research had paid little attention to the question of what makes for "effective" vocational education institutions. Yet, it is fair to state that a substantial proportion of the Colloquium papers registered the view that the educational processes of the vocational education enterprise as a whole are susceptible to improvement and that the knowledge and information gleaned from R & D are means for achieving that end. On this score, the papers, as well as the discussions, struck an optimistic note.

Resources for R & D and Their Allocation. When it came to considering the question of whether there is now or would be in the future the resource base for pursuing R & D activities essential for improving the quality of vocational education programs, participants in the Colloquium were profoundly pessimistic. Cuts in Federal funds for R & D and the relative lack of support from state and local sources gave urgency to the concern expressed directly or indirectly that the "preconditions" for conducting effective R & D programs do not now exist and are not likely to be established in the future. These "preconditions," it was observed, are not alone, the number of dollars available for R & D activities, for dollars are simply proxies for the real resources of well-trained personnel, strong, well equipped research organizations, and systems of knowledge and information. Better prepared researchers drawn from the several social science disciplines, as well as from the field of education, and increased and strengthened academic research capabilities were called for. Also stressed was the importance of systemmatically planned R & D programs that would assure sufficient continuity needed to produce building blocks of cumulative knowledge and also contribute to more effective utilization of the results of R & D.

How best to allocate the limited resources available for R & D activities was an accompanying theme sounded in several Colloquium papers. This concern has several roots. One lies in the difficulty of resolving the competing claims between fundamental and applied research and between research, broadly conceived, and developmental efforts designed to benefit practitioners. A second is the lack of knowledge in the vocational education community about tested procedures for deciding rationally which of a very large number of inviting problems or questions should be attacked. Limited resources, in other words, necessitate methods of selection that are neither capricious nor arbitrary. On this front little formal work has been done in the vocational education domain.

Another source of concern emerges from the inability, given limited resources, to undertake efforts of recognized worth and importance because they require funding on a scale that would leave little for the conduct of other meritorious activities. A case in point would be the construction and operation of

specialized vocational education longitudinal data bases that could be used to investigate more effectively than is now possible the effects on learners of participating in vocational education courses and programs. Still another reason for being concerned with problems of allocating scarce resources grows out of the fact that large shares of reduced Federal funding are earmarked in the Federal legislation for the National Occupational Information Coordinating Committee and The National Center for Research in Vocational Education and that the remaining funds are spent largely on R & D linked to numerous policy priorities set by the U.S. Department of Education in line with changing administration objectives. Criticisms made of vocational education research activities that are devoted to trivial problems, are misdirected, are fragmented, or are duplicative were part of the theme of the need to improve the ways for reaching sound decisions on allocating resources for research and development.

Getting a Better Handle on the Future. The theme of R & D being more sharply focused on elements of change is, of course, related to the notion that some of the resources available for research be allocated to "futures" research. This point is made explicitly or implicitly in several Colloquium papers. It reflects the view that in the absence of specific efforts to anticipate future technological, labor force, and occupational developments, vocational education programming will always run the risk of lagging behind current needs. A futures cast to research would, it was assumed, enable the field to engage in planning that is more genuinely prospective than that now being conducted.

The underlying argument, in short, is that if the enterprise could secure a better handle on the future, it would gain the lead time needed by institutions to be responsive to the dynamics of economic and social change. Improvements in forecasting techniques were visualized as one important step toward this goal. At the same time, however, doubt was expressed that even improved national forecasts of labor demand and supply relationships would ever serve to save planners from making errors, particularly with respect to local program decisions, or from the charge of being unresponsive.

Information and Knowledge for Policy Making. Just as a number of papers register a strong sense that R & D programs should be designed so as to serve practitioners, so others made the point that policy makers at every level of government would benefit enormously from inquiries seeking to produce information and knowledge usable for policy assessment, modification, and formation. How policies work out in fact, how they might be improved, and whether they should be terminated or replaced are questions that legislative bodies, elected and appointed governmental officials, school boards, and the courts are called on to answer. All too commonly, however, they undertake--or are compelled--to do so armed with inadequate or unreliable information and partial or imperfect knowledge. It is not surprising, therefore, that the suggestion was made that a policy inquiry along the lines of the Vocational Education Study, conducted by the National Institute of Education, mandated by the Education Amendments of 1976 (P.L. 94-482), be periodically repeated. At the same time, it was made clear that this kind of

study of Federal vocational education legislation and of its systemic effects could not alone serve the needs of policy makers at all three levels of government and in all settings.

The theme of policy-oriented studies is, of course, an overlapping theme. It is not at odds with the preceding five sets of central considerations or reference points for R & D programming in the future that I derived from the Colloquium papers. It is obvious that the fruits of well conducted inquiries centering on change, students, educational processes, allocating R & D resources, and the future could be useful to policy makers.

The point was made, however, that the R & D that has been and is being performed is not conceived for the most part with an eye to policy makers being primary consumers of the results. Researchers and practitioners, it was observed, are likely to be the primary audiences for R & D products that are written in language (if not specialized jargons) with which policy makers are not conversant and presented in formats--such as the journal article or the technical research report--with which they are unfamiliar. The implication was that the information and knowledge produced by much ongoing vocational education R & D would be relevant to policy-making functions if they could be communicated and packaged differently.

Concluding Observations

There are four quick observations to add to this personal "summing up"--to "this brief delineation of the distinguishing features of the papers prepared for the Colloquium," as I said earlier.

One is a final reminder that it is an acutely personal summation, and that others will no doubt read different messages in the papers.

The second observation follows from this and it is that each reader should depend upon the papers, and not upon the "summing up," to get a sense of the range and variety of considerations set forth for shaping R & D programming that emerge as a result of bringing different perspectives to bear on task of recommending agendas for R & D.

The third observation is that every "summing up" is inevitably reductionist in effect and, therefore, washes out the specificities and details in recommendations that help illuminate the intended purposes and subsequent use of the R & D proposed.

The fourth and final observation is that the Colloquium seemed so worthwhile to participants that many of them urged the sponsoring agencies to assure that similar efforts be carried out in the future in order to contribute to more rigorous thinking about and planning of R & D programs.

Appendices

APPENDIX A

Agenda for a Colloquium on
Vocational Education Research for the 1980s

Sponsored by

The Coordinating Committee on Research in Vocational Education

and

The American Vocational Education Research Association

July 29-30, 1982

National Academy of Sciences

2101 Constitution Avenue, N.W.
Washington, D.C. 20418

The Board Room

July 29

9:00 I. Introduction: Howard F. Hjelm, Department of Education, Chairman of the CCRVE

II. Approaches to Research Programming: Howard F. Hjelm, Chairman

A. Research Suggestions from the Report of the Committee on Vocational Education Research and Development, 1976: Rupert Evans, University of Illinois

B. Research Suggestions from a National Institute of Education Research on Education and Work: Report of an Agenda Meeting, 1978, and from the NIE Vocational Education Study: Henry David, National Institute of Education

C. Federal Priorities and Patterns of Research Support 1974-1981: Glenn C. Boerrigter, Department of Education

III. National Perspectives on Research Programming for the 1980s: Henry David, Chairman

A. Congressional Perspectives:

Howard Matthews, Majority Staff, Senate Committee on Labor and Human Resources

Charles W. Radcliffe, Minority Staff, House Committee on Education and Labor

B. Views from the National Advisory Council on Vocational Education: George Wallrodt, Acting Executive Director, NACVE

C. Views from the National Commission for Employment Policy: Kenneth M. Smith, Chairman, NCEP

IV. State and Local Perspectives on Research Programming for the 1980s: Glenn C. Boerrigter, Chairman

A. State Level Perspectives:

Dave McQuat, RCU Director of Research, Division of Vocational Education, Florida State Department of Education (for Joe D. Mills, State Director of Vocational Education)

Pascal D. Forgione, Jr., Bureau of Research, Planning and Evaluation, Connecticut State Department of Education

Ronald D. McCage, Director, V-TECS, Atlanta, Georgia

E. Michael Latta, Executive Director, North Carolina Advisory Council on Vocational Education

Rebecca Douglass, Director, East Central Curriculum Coordination Center

12:30 Lunch

1:30 IV. State and Local Level Perspectives on Research Programming for the 1980s (Continued): Glenn C. Boerrigter, Chairman

B. Local Level Perspectives:

Duane R. Lund, Superintendent of Schools, Staples, Minnesota

A. Thomas Oyster, Supervisor of Vocational and Industrial Education, Board of Education, Washington County, Maryland

IV. State and Local Level Perspectives on Research Programming for the 1980s (Continued): Glenn C. Boerrigter, Chairman

B. Local Level Perspectives (Continued):

George R. Quarles, Office of Occupational and Career Education, New York City Board of Education

Merle Strong, University of Wisconsin

V. Researchers' Perspectives on Research Programming for the 1980s: Henry David, Chairman

A. Views from the Editorial Board of the Journal of Vocational Education Research: Dale Oliver, Editor

B. Views of Individuals:

Daniel H. Saks, The Brookings Institution

Denis Doyle, American Enterprise Institute

4:30 Adjournment

July 30

9:00 V. Researchers' Perspectives on Research Programming for the 1980s (Continued): Henry David, Chairman

B. Views of Individuals (Continued):

Robert H. Meyer, The Urban Institute

Jerome Moss, Jr., University of Minnesota

Ruth P. Hughes, Iowa State University

Gordon I. Swanson, University of Minnesota

VI. Concluding Colloquium Session: Howard F. Hjelm, Chairman

A. A Summing Up: Henry David

B. Discussion

12:30 Adjournment

APPENDIX B

Colloquium Participants

Curtis C. Aller	Director Employment Studies, San Francisco State University, 1600 Holloway, San Francisco, CA 94707
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George Wallrodt	Acting Executive Director, National Advisory Council on Vocational Education, 425 13th Street, N.W., Suite 412, Washington, D.C. 20004
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APPENDIX C

Members of The Coordinating Committee on Research in Vocational Education and Meeting Attendees

Ralph Bergman	National Advisory Council on Vocational Education, Washington, D.C.
Glenn C. Boerrigter	Personnel Development Branch, OVAE, Department of Education
Henry David	Vocational Education Study Project, National Institute of Education
Lynn Demeester	Fund for the Improvement of Postsecondary Education, Department of Education
Howard F. Hjelm*	Division of National Vocational Programs, OVAE, Department of Education
Laurabeth Hicks	Division of Development and Dissemination, OVAE, Department of Education
Maxwell Mueller	Special Education and Rehabilitative Services, Department of Education
Rodney Riffel	Vocational Education Study Project, National Institute of Education
Warren Simmons	Programs on Teaching and Learning, National Institute of Education
O. Ray Warner	Office of Career Education, Department of Education

*Chairman CCRVE
**Members as of September 1982

APPENDIX D

American Vocational Education Research Association:
Executive Committee and Editorial Staff

President . . . . . Earl B. Russell
University of Illinois

Past President . . . . . Ronald D. McCage
Vocational-Technical Consortium of States

President-Elect . . . . . Jay Smink
The National Center for Research in Vocational Education

Recording Secretary . . . . . Charles C. Drawbaugh
Rutgers University

Membership Secretary . . . . . Connie J. Ley
University of Nebraska

Treasurer . . . . . Clyde F. Maurice
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Chairperson, JVER, Editorial Board . . . . . F. Marion Asche
Virginia Polytechnic Institute and State University

Editor . . . . . J. Dale Oliver
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Associate Editor . . . . . Robert C. Harris
Indiana University

Managing Editor . . . . . Wesley E. Budke
The National Center for Research in Vocational Education

Beacon Editors . . . . . Michael F. Burnett and Gary E. Moore
Louisiana State University